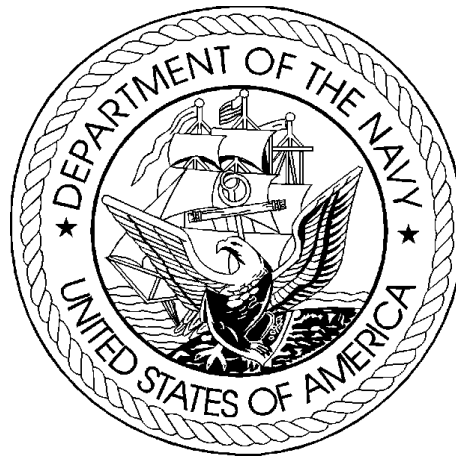


DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2006/FY 2007
BUDGET ESTIMATES



JUSTIFICATION OF ESTIMATES
FEBRUARY 2005

RESEARCH, DEVELOPMENT, TEST &
EVALUATION, NAVY
BUDGET ACTIVITY 4

UNCLASSIFIED
DEPARTMENT OF THE NAVY
FY 2006 RDT&E PROGRAM
SUMMARY
(\$ IN THOUSANDS)

FEBRUARY 2005

Summary Recap of Budget Activities -----	FY 2004 -----	FY 2005 -----	FY 2006 -----
Advanced Component Development & Prototypes	2,752,558	3,096,642	3,276,391
Total Research, Development, Test & Eval, Navy	2,752,558	3,096,642	3,276,391
 Summary Recap of FYDP Programs -----			
Research and Development	2,752,558	3,096,642	3,276,391
Total Research, Development, Test & Eval, Navy	2,752,558	3,096,642	3,276,391

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DEPARTMENT OF THE NAVY
FY 2006 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: FEBRUARY 2005

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2004 -----	FY 2005 -----	FY 2006 -----	
30	0603207N	Air/Ocean Tactical Applications	04	21,427	25,186	27,094	U
31	0603216N	Aviation Survivability	04	16,992	39,062	6,255	U
32	0603237N	Deployable Joint Command and Control	04	63,475	41,984	41,464	U
33	0603254N	ASW Systems Development	04	18,519	17,869	7,050	U
34	0603261N	Tactical Airborne Reconnaissance	04	2,029	6,386	3,938	U
35	0603382N	Advanced Combat Systems Technology	04	14,998	66,951	30,166	U
36	0603502N	Surface and Shallow Water Mine Countermeasures	04	126,231	108,016	122,122	U
37	0603506N	Surface Ship Torpedo Defense	04	39,997	53,770	47,039	U
38	0603512N	Carrier Systems Development	04	150,169	162,007	167,823	U
39	0603513N	Shipboard System Component Development	04	35,425	45,254	22,150	U
40	0603525N	PILOT FISH	04	94,807	76,363	141,369	U
41	0603527N	RETRACT LARCH	04	72,146	81,579	82,717	U
42	0603536N	RETRACT JUNIPER	04	14,463	36,379	54,887	U
43	0603542N	Radiological Control	04	1,094	938	1,845	U
44	0603553N	Surface ASW	04	13,569	19,843	17,343	U
45	0603559N	SSGN Conversion	04	66,836	19,777	24,020	U
46	0603561N	Advanced Submarine System Development	04	85,693	88,188	162,953	U
47	0603562N	Submarine Tactical Warfare Systems	04	6,939	5,900	7,125	U
48	0603563N	Ship Concept Advanced Design	04	19,006	16,166	11,899	U
49	0603564N	Ship Preliminary Design & Feasibility Studies	04			27,021	U
50	0603570N	Advanced Nuclear Power Systems	04	198,814	168,080	168,373	U

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DEPARTMENT OF THE NAVY
FY 2006 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: FEBRUARY 2005

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2004 -----	FY 2005 -----	FY 2006 -----	
51	0603573N	Advanced Surface Machinery Systems	04	6,461	3,367		U
52	0603576N	CHALK EAGLE	04	7,674	47,170	116,230	U
53	0603581N	Littoral Combat Ship (LCS)	04	158,314	452,611	576,454	U
54	0603582N	Combat System Integration	04	102,456	99,099	76,975	U
55	0603609N	Conventional Munitions	04	41,670	33,814	36,940	U
56	0603611M	Marine Corps Assault Vehicles	04	231,948	243,058	253,675	U
57	0603612M	USMC Mine Countermeasures Systems - Adv Dev	04	925	4,478	3,265	U
58	0603635M	Marine Corps Ground Combat/ Support System	04	24,405	30,414	500	U
59	0603654N	Joint Service Explosive Ordnance Development	04	16,547	21,243	34,418	U
60	0603658N	Cooperative Engagement	04	86,996	102,150	88,135	U
61	0603713N	Ocean Engineering Technology Development	04	17,545	25,978	24,620	U
62	0603721N	Environmental Protection	04	31,456	28,113	21,977	U
63	0603724N	Navy Energy Program	04	4,572	7,719	1,595	U
64	0603725N	Facilities Improvement	04	1,424	4,577	4,158	U
65	0603734N	CHALK CORAL	04	59,868	57,773	52,769	U
66	0603739N	Navy Logistic Productivity	04	18,429	19,393	8,909	U
67	0603746N	RETRACT MAPLE	04	303,062	271,137	308,708	U
68	0603748N	LINK PLUMERIA	04	100,841	111,903	81,723	U
69	0603751N	RETRACT ELM	04	39,089	47,664	57,036	U
70	0603755N	Ship Self Defense	04	13,451	9,402	9,592	U
71	0603764N	LINK EVERGREEN	04	91,987	62,287	58,153	U

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DEPARTMENT OF THE NAVY
FY 2006 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: FEBRUARY 2005

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2004 -----	FY 2005 -----	FY 2006 -----	
72	0603787N	Special Processes	04	51,469	43,677	47,908	U
73	0603790N	NATO Research and Development	04	9,333	10,053	10,335	U
74	0603795N	Land Attack Technology	04	117,110	100,305	14,195	U
75	0603851M	Nonlethal Weapons	04	40,895	45,414	43,981	U
76	0603857N	All Service Combat Identification Evaluation Team (ASCIET)	04	14,465	13,475	15,696	U
77	0603860N	Joint Precision Approach and Landing Systems	04	22,934	32,077	39,260	U
78	0603879N	Single Integrated Air Picture (SIAP) System Engineer (SE)	04	14,335	19,957	36,721	U
79	0603889N	Counterdrug RDT&E Projects	04	12,079	3,756		U
80	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	11,575	7,133	9,956	U
81	0604327N	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04		9,906		U
82	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	36,614	25,602	44,469	U
83	0604787N	Joint Warfare Transformation Programs	04		22,239	23,385	U
		Advanced Component Development & Prototypes		----- 2,752,558	----- 3,096,642	----- 3,276,391	
		Total Research, Development, Test & Eval, Navy		----- 2,752,558	----- 3,096,642	----- 3,276,391	

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**Fiscal Year 2006 Budget Estimates
Budget Appendix Extract Language**

**RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY
(RDTEN)**

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, [\$17,043,812,000] *\$18,037,991,000*, to remain available for obligation until September 30, [2006] *2007: Provided*, That funds appropriated in this paragraph which are available for the V-22 may be used to meet unique operational requirements of the Special Operations Forces: *Provided further*, That funds appropriated in this paragraph shall be available for the Cobra Judy program. (*10 U.S.C. 174, 2352– 54, 7522; Department of Defense Appropriations Act, 2005.*)

Program: *Communications
Infrastructure*

Agency: *Department of Defense--Military*

Bureau: *Department of Defense--Military*

Rating: *Results Not Demonstrated*

Program Type: *Capital Assets and Service Acquisition*

Last Assessed: *2 years ago*

<i>Key Performance Measures from Latest PART</i>	<i>Year</i>	<i>Target</i>	<i>Actual</i>
Annual Measure: Percent of time that the Non-Secure Internet Protocol Router Network (NIPRNET) access circuit is available. NIPRNET is the unclassified IT system.	2000	> 98.5%	99.63%
	2001	> 98.5%	99.50%
	2002	> 98.5%	99.5%
	2003	> 98.5%	99.5%
Annual Measure: Number of bases upgraded by the Army Installation Information Infrastructure Modernization Program (I3MP)	2001	5	5
	2002	8	8
	2003	5	5

Update on Follow-up Actions:

<i>Recommended Follow-up Actions</i>	<i>Status</i>
DoD will develop common metrics to assess program performance across the department.	Action taken, but not completed

Program Funding Level (in millions of dollars)

<u>2004 Actual</u>	<u>2005 Estimate</u>	<u>2006 Estimate</u>
3,625	4,244	4,021

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EXHIBIT R-2, RDT&E Budget Item Justification					DATE:		FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /				R-1 ITEM NOMENCLATURE PE 0603207N Air/Ocean Tactical Applications				
BA-4								
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	21.427	25.186	27.094	32.145	31.265	32.205	31.945	32.617
2341 METOC Data Acquisition	7.283	8.465	9.185	10.938	10.800	11.001	11.113	11.313
2342 METOC Data Assimilation and Modeling	6.825	7.850	9.598	10.949	11.085	11.861	11.279	11.554
2343 Tactical METOC Applications	6.222	6.630	7.007	8.674	8.872	9.045	9.250	9.441
2344 Precise Timing and Astrometry	1.097	1.250	1.304	1.584	0.508	0.298	0.303	0.309
9204 Marine mammal Tracking and Mitigation*	0.000	0.991	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles								
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
<p>The Air Ocean Tactical Applications (AOTA) Program Element is fully aligned with Navy's Sea Power 21 concept to enhance the future mission capabilities of the Navy-Marine Corps Team. New state-of-the art Government and commercial technologies are identified, transitioned, demonstrated and then integrated into Combat Systems and FORCEnet-related programs of record that determine in realtime and near-realtime the operational effects of the physical environment on the performance of combat forces and their new and emerging platforms, sensors, systems and munitions. The AOTA program element focuses on sensing and characterizing the littoral and deep-strike battlespace in the context of regional conflicts and crisis response scenarios. Projects in this program element transition state-of-the art sensing, assimilation, modeling and decision aid technologies from Government and commercial sources. Unique project development efforts include atmospheric and oceanographic data assimilation techniques, forecast models, data base management systems and associated software for use in mainframe, desktop and laptop computers. Global Geospatial Information and Services efforts within this program address the bathymetric and gravimetric needs of the Navy. Also developed are algorithms to process new satellite sensor data for integration into Navy and Marine Corps decision support systems and for display as part of the common operational and tactical pictures. In addition, the projects provide for demonstration and validation of specialized atmospheric and oceanographic instrumentation and measurement techniques, new sensors, communications and interfaces. Included are new capabilities to assess, predict and enhance the performance of current and emerging undersea warfare and mine warfare weapons systems. AOTA capabilities are designed to support the last versions of the Global Command and Control System (GCCS), the new Joint Command and Control (JC2) system, and specific unit-level combat systems. This program also develops representations of the physical environment for incorporation into Navy and Marine Corps warfare trainers and simulations. Finally, this program develops technological upgrades for the U.S. Naval Observatory's Master Clock system to keep pace with the demands of modern military communications, cryptographic, intelligence, geolocation, and targeting systems; develops near-real-time earth orientation predictions; develops very precise determination of positions of both faint and bright stars; and supports satellite tracking and space debris studies.</p> <p>Funding increase beginning in FY06 reflects Intelligence Preparation of Battlespace Sensor R&D to meet CNO and CFFC requirements for remote autonomous, clandestine, littoral battlespace sensing in near shore areas in support of Sea Shield & Sea Basing.</p> <p>*Congressional plus up.</p>								
(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates systems for experimental test related to specific ship or aircraft applications.								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2341 METOC Data Acquisition				
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		7.283	8.465	9.185	10.938	10.800	11.001	11.113	11.313
RDT&E Articles Qty									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The major thrust of the meteorology and oceanography (METOC) Data Acquisition Project is to provide future mission capabilities to warfighters that will allow them to detect and monitor the conditions of the physical environment throughout the entire battlespace. New sensor technologies are identified and the most promising candidates are transitioned from the Government's and Commercial Industry's technology base to this project. These new sensor technologies are then demonstrated, validated and integrated into operational programs of record for use by warfighters. These new sensor capabilities are to provide timely and accurate METOC data and products to Operational and Tactical level of war commanders. As the emphasis on Naval Warfare has evolved from blue water operations to the littoral and deep strike battlespace, METOC data requirements have likewise evolved. The littoral and deep strike regions are extremely dynamic and complex, characterized by strong and highly variable oceanographic and atmospheric conditions. As a result, the need to accurately characterize these conditions is more crucial than ever in planning and executing Amphibious Warfare, Mine Warfare, Special Operations, Anti-Submarine Warfare, and Strike Warfare operations. Routinely available data sources, such as climatology, oceanographic and meteorological numerical models, and satellite remote sensing are necessary but not sufficient to support these warfare areas in the littoral and deep strike regions. Current operational sensors, such as the standard balloon launched radiosonde, are deployed from platforms that are frequently located great distances from the target area of interest. The principal challenge is to provide a means for the collection and dissemination of METOC data in highly variable and dynamic littoral environmental conditions or in denied, remote or inaccessible areas over extended periods of time. The principal goals of this project are to: 1) Provide the means to rapidly and automatically acquire a broad array of METOC data using both off-board and on-board sensors; 2) provide an on-scene assessment capability for the tactical commander; 3) provide the tactical commander with real-time METOC data and products for operational use; 4) demonstrate and validate the use of tactical workstations and desktop computers for processing and display of METOC data and products using latest networking technologies; 5) demonstrate and validate techniques which employ data compression, connectivity and interface technologies to ingest, store, process, distribute and display these METOC data and products; 6) develop new charting and bathymetric survey techniques necessary to reduce the existing shortfall in coastal hydrographic survey requirements; and, 7) develop an expanded database for predictive METOC models in areas of interest.

Intelligence Preparation of Battlespace Sensor R&D to meet CNO and CFFC requirements for remote autonomous, clandestine, littoral battlespace sensing in near shore areas in support of Sea Shield & Sea Basing.

R-1 SHOPPING LIST - Item No. 30

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 2 of 39)

CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2341 METOC Data Acquisition																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Autonomous Sensors (AUV/UAV)</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.904</td> <td>1.251</td> <td>1.349</td> <td>1.465</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Autonomous Sensors (AUV/UAV)	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.904	1.251	1.349	1.465	RDT&E Articles Quantity				
Autonomous Sensors (AUV/UAV)	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.904	1.251	1.349	1.465															
RDT&E Articles Quantity																			
<p>FY04 - Completed development and testing of prototype sensor suites for Unmanned Aerial Vehicles (UAVs). Continued development of next generation micro AUV and miniaturized UAV sensor suites for mini/micro UAV platforms.</p> <p>FY05 - Test/demonstrate communications connectivity of micro AUV and miniaturized sensor suites for mini/micro UAV platforms.</p> <p>FY06 - Deliver/test/demonstrate prototype Sensor Pod on operational UAVs of miniaturized sensor suites for mini/micro UAV platforms. Deliver, test, demo prototype micro AUV.</p> <p>FY07- Develop and test Network interoperability of miniaturized sensor suites for next generation mini/micro UAV platforms and micro AUV.</p>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Acoustic Data Inversion</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.174</td> <td>1.258</td> <td>1.414</td> <td>1.637</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Acoustic Data Inversion	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.174	1.258	1.414	1.637	RDT&E Articles Quantity				
Acoustic Data Inversion	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.174	1.258	1.414	1.637															
RDT&E Articles Quantity																			
<p>FY04 - Continued assessments of temporal and spatial variability of littoral environments for acoustic data inversions. Delivered Version 1 of the Geophysical Acoustic Inversion Toolkit (GAIT) to the Ocean Atmosphere Master Library (OAML).</p> <p>FY05 - Complete assessments of temporal and spatial variability of littoral environments for acoustic data inversions. Continue IV&V on Geophysical Acoustic Inversion Toolkit (GAIT) Version 2 algorithms. Development and demonstration of advanced acoustic inversion techniques incorporating expert systems technology.</p> <p>FY06 - Deliver Geophysical Acoustic Inversion Toolkit (GAIT) Version 2 algorithms to Ocean Atmosphere Master Library (OAML).</p> <p>FY07 - Integrate Geophysical Acoustic Inversion Toolkit (GAIT) Version 2 into Fleet Combat Systems. Mature networked data sharing capabilities.</p>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Ambient Noise Data</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.996</td> <td>1.218</td> <td>1.394</td> <td>1.507</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Ambient Noise Data	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.996	1.218	1.394	1.507	RDT&E Articles Quantity				
Ambient Noise Data	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.996	1.218	1.394	1.507															
RDT&E Articles Quantity																			
<p>FY04 - Delivered Dynamic Ambient Noise Prediction System (DAPS) Version 1.1. Continued development of DAPS Version 2. Development of advanced techniques to acquire and manage ambient noise data.</p> <p>FY05 - Conduct IV&V on Dynamic Ambient Noise Prediction System (DAPS) Version 2. Update historical shipping noise (SN) database. Deliver Dynamic Ambient Noise Prediction System (DAPS) Version 2.</p> <p>FY06 - Deliver updated historical shipping noise database to the Ocean Atmosphere Master Library (OAML).</p> <p>FY07 - Integrate Dynamic Ambient Noise Prediction System (DAPS) Version 2 and updated historical shipping noise database into Fleet Combat Systems. Development of Network based on DAPS. Add real-time ship tail Ambient Noise (AN) observations to the Shipping Noise (SN) database.</p>																			

R-1 SHOPPING LIST - Item No. 30

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 3 of 39)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2341 METOC Data Acquisition		

(U) B. Accomplishments/Planned Program

Autonomous Clandestine Sensors	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.965	1.306	1.387	1.454
RDT&E Articles Quantity				

FY04 - Completed development of autonomous clandestine sensors for measurements in denied areas. Delivered web enabled prototype.
FY05 - Deliver final version of web enabled system. Development of follow on autonomous clandestine sensors for data acquisition in denied areas.
FY06 - Deliver prototype capable of automated data assimilation via the Network infrastructure and Tactical Environmental Data Services (TEDServices).
FY07 - Demonstrate and validate automated data assimilation via the Network. Begin integration into Fleet Combat Systems.

Data Connectivity	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.973	1.213	1.314	1.459
RDT&E Articles Quantity				

FY04 - Completed development of data connectivity with Global Command and Control System - Maritime (GCCS-M). Delivered Tactical Environmental Data Services (TEDS) Version 1 software. Continued development improvements.
FY05 - Complete development of data connectivity with Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR). Deliver TEDServices Version 2 prototype.
FY06 - Deliver TEDServices Version 3 prototype.
FY07 - Demonstrate and validate TEDServices Version 3 to continue Network compatibility effort.

Acoustic Data Acquisition	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.479	1.133	1.222	1.705
RDT&E Articles Quantity				

FY04 - Delivered AQS-20 mine hunting sonar prototype software and Precision Undersea Mapper (PUMA) Version 2 prototype software. Development of advanced technology Through The Sensor (TTS) data acquisition techniques.
FY05 - Deliver AQS-20 mine hunting sonar prototype Version 1 and conduct IV&V on Precision Undersea Mapper (PUMA) Version 2 software. Evolutionary development of expert system acoustic data acquisition techniques to directly ingest data obtained from tactical sensors.
FY06 - Deliver prototype submarine Connectivity Temperature Depth (CTD)/Modular Ocean Data Assimilation System-Light (MODAS-L) data ingest algorithms. Deliver prototype volumetric sound velocity assimilation algorithms. Development of submarine ambient noise assimilation capability.
FY07 - Test and validate prototype Connectivity Temperature Depth (CTD)/Modular Ocean Data Assimilation System-Light (MODAS-L) data ingest and volumetric sound velocity assimilation algorithms for Ocean Atmosphere Master Library (OAML) approval. Begin integration of these algorithms into submarine combat systems. Development of web-based submarine ambient noise assimilation capability.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2341 METOC Data Acquisition																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Digital MC and G Analysis Program (DMAP)</td> <td style="padding: 2px; text-align: center;">FY 04</td> <td style="padding: 2px; text-align: center;">FY 05</td> <td style="padding: 2px; text-align: center;">FY 06</td> <td style="padding: 2px; text-align: center;">FY 07</td> </tr> <tr> <td style="padding: 2px;">Accomplishments/Effort/Subtotal Cost</td> <td style="padding: 2px; text-align: center;">0.792</td> <td style="padding: 2px; text-align: center;">1.086</td> <td style="padding: 2px; text-align: center;">0.645</td> <td style="padding: 2px; text-align: center;">1.265</td> </tr> <tr> <td style="padding: 2px;">RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Digital MC and G Analysis Program (DMAP)	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.792	1.086	0.645	1.265	RDT&E Articles Quantity				
Digital MC and G Analysis Program (DMAP)	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.792	1.086	0.645	1.265															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> FY04 - 07 Conduct annual pre-release technical analysis and research of new National Geospatial Agency (NGA) products used by the Navy for navigation systems and maritime safety for Quality Control, Suitability of Use, and Interoperability. FY04 - Delivered Annual Report. FY05 - Deliver Annual Report. FY06 - Deliver Annual Report. FY07 - Deliver Annual Report. </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Littoral Battlespace Data Acquisition</td> <td style="padding: 2px; text-align: center;">FY 04</td> <td style="padding: 2px; text-align: center;">FY 05</td> <td style="padding: 2px; text-align: center;">FY 06</td> <td style="padding: 2px; text-align: center;">FY 07</td> </tr> <tr> <td style="padding: 2px;">Accomplishments/Effort/Subtotal Cost</td> <td style="padding: 2px; text-align: center;">0.000</td> <td style="padding: 2px; text-align: center;">0.000</td> <td style="padding: 2px; text-align: center;">0.460</td> <td style="padding: 2px; text-align: center;">0.446</td> </tr> <tr> <td style="padding: 2px;">RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Littoral Battlespace Data Acquisition	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.460	0.446	RDT&E Articles Quantity				
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> FY06 - Develop initial Integrated Littoral Battlespace Data Acquisition Plan. Develop new databases required to support emerging sensors (i.e. Battlespace Profiler Autonomous Undersea Vehicle (BPAUV), Next Generation Atmospheric Sensor, Seaglider Data, and Helicopter/UAV atmospheric sensors) and integrate into Tactical Environmental Data Services (TEDS) and other nodes as appropriate. FY07 - Demonstrate initial sensing plan concepts and submit Lessons Learned/Post Exercise (POSTEX). Develop new databases required to support emerging sensors and integrate into TEDServices and other nodes as appropriate. </div>																			
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Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																																																																		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2341 METOC Data Acquisition																																																																			
<p>(U) C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">(U) Funding:</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">7.808</td> <td style="text-align: right;">8.548</td> <td style="text-align: right;">8.786</td> <td style="text-align: right;">10.625</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">7.283</td> <td style="text-align: right;">8.465</td> <td style="text-align: right;">9.185</td> <td style="text-align: right;">10.938</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">(0.525)</td> <td style="text-align: right; border-top: 1px solid black;">(0.083)</td> <td style="text-align: right; border-top: 1px solid black;">0.399</td> <td style="text-align: right; border-top: 1px solid black;">0.313</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Congressional Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional Recissions</td> <td></td> <td style="text-align: right;">(0.081)</td> <td></td> <td></td> </tr> <tr> <td> Reprogrammings</td> <td style="text-align: right;">(0.423)</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Programmatic Adjustments</td> <td></td> <td style="text-align: right;">(0.002)</td> <td style="text-align: right;">0.360</td> <td style="text-align: right;">0.203</td> </tr> <tr> <td> Economic Assumptions</td> <td></td> <td></td> <td style="text-align: right;">0.046</td> <td style="text-align: right;">0.072</td> </tr> <tr> <td> Pricing Adjustments</td> <td></td> <td></td> <td style="text-align: right;">(0.007)</td> <td style="text-align: right;">0.038</td> </tr> <tr> <td> SBIR/STTR Transfers</td> <td style="text-align: right;">(0.102)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">(0.083)</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.399</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.313</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Schedule:</p> <p style="margin-top: 20px;">(U) Technical: Not applicable.</p>					(U) Funding:	FY 2004	FY 2005	FY 2006	FY 2007	FY05 President's Budget	7.808	8.548	8.786	10.625	FY06 President's Budget	7.283	8.465	9.185	10.938	Total Adjustments	(0.525)	(0.083)	0.399	0.313	Summary of Adjustments					Congressional Adjustments					Congressional Recissions		(0.081)			Reprogrammings	(0.423)				Programmatic Adjustments		(0.002)	0.360	0.203	Economic Assumptions			0.046	0.072	Pricing Adjustments			(0.007)	0.038	SBIR/STTR Transfers	(0.102)				Subtotal	0.000	(0.083)	0.399	0.313
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EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2341 METOC Data Acquisition
<p>(U) D. OTHER PROGRAM FUNDING SUMMARY:</p> <p><u>Line Item No. & Name</u></p> <p>RELATED RDT&E: PE 0604218N, Air/Ocean Equipment Engineering - AN/SMQ-11 satellite receiver/recorder system engineering to receive data from on orbit Defense Meteorological Satellite Program (DMSP) sensors onboard selected ships and shore sites.</p> <p>(U) E. ACQUISITION STRATEGY:</p> <p>Acquisition, management and contracting strategies are to support the meteorology and oceanography (METOC) Data Acquisition Project to develop, demonstrate, and validate METOC data collection methods and sensors, and to evolve the ability to provide timely and accurate METOC data and products to the Tactical Commander, all with management oversight by the Program Executive Officer for Command, Control, Communications, Computers, and Intelligence and Space (PEO C4I & Space).</p> <p>(U) F. MAJOR PERFORMERS:</p> <p>N/A</p> <p>(U) G. METRICS:</p> <p>Earned Value Management (EVM) is used for metrics reporting and risk management.</p>		

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Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE&E, N / BA-4			PE 0603207N Air/Ocean Tactical Applications			2341 METOC Data Acquisition						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NRL	21.688	4.376	N/A	4.656	N/A	5.598	N/A	CONT	CONT	
	WX	NAWC-AD Lake	0.923	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CP	ARL/APL	4.454	0.400	N/A	0.440	N/A	0.527	N/A	CONT	CONT	
	WX	NSWC	2.362	0.300	N/A	0.330	N/A	0.395	N/A	CONT	CONT	
	CP	New Age	2.528	0.705	N/A	0.775	N/A	0.898	N/A	CONT	CONT	
	CP	PSI/R.L.Phillips	1.555	0.500	N/A	0.550	N/A	0.639	N/A	CONT	CONT	
	CP	Neptune	1.415	0.400	N/A	0.440	N/A	0.527	N/A	CONT	CONT	
	WX	FNMO	1.661	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	N/A	MISC	11.629	1.649	N/A	1.815	N/A	2.135	N/A	CONT	CONT	
Subtotal Software Development			48.215	8.330		9.005		10.718		CONT	CONT	
Remarks:												
Systems Engineering	CP	SSA/CSC	1.525	0.135	N/A	0.180	N/A	0.220	N/A	CONT	CONT	
Subtotal Support			1.525	0.135		0.180		0.220		CONT	CONT	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)									DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2341 METOC Data Acquisition						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			49.740	8.465		9.185		10.938		CONT	CONT	
Remarks:												

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EXHIBIT R4, Schedule Profile																								DATE: FEBRUARY 2005													
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4								PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications												PROJECT NUMBER AND NAME 2341 METOC Data Acquisition																	
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011								
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4									
ROV/AUV Sensors			▲		MICRO AUV				DEM/VAL					Stealth AUV				DEM/VAL					▲														
UAV Sensors	Mini Sensor Package				Connectivity Demo				DEM/VAL				Prototype Pod					DEM/VAL				Next Generation Sensor Package				DEM/VAL				Next Generation Sensor Package					▲		
Acoustic Data Inversion	GAIT Ver 1.0				OAML				GAIT Ver 2.0				OAML				Combat System Integration				GAIT Ver 3.0				Autonomous Expert System				Combat System Upgrade								
	DAPS Ver 1.0								DEM/VAL												DEM/VAL																
Ambient Noise Data		Integrate New SL Algorithms				DAPS Ver 2.0				DEM/VAL				Network/GCCS-M Integration				Shipping Database Development				Biological Noise				Surf Noise				DAPS Ver 3.0				DEM/VAL			
Autonomous Clandestine Sensors		▲			Web-Enabled System				DEM/VAL				FORCENET/TEDServices Integration				Air Deployed Micro-sensors				DEM/VAL				NEXGEN Micro-sensors				DEM/VAL					▲			
	TEDServices V1.0				DEM/VAL				TEDServices V2.0				DEM/VAL				TEDServices V3.0				GIG ES				DEM/VAL				NEXGEN TEDServices				DEM/VAL				
Data Connectivity																	DEM/VAL				GIG ES				DEM/VAL				NEXGEN TEDServices				DEM/VAL				
Acoustic Data Acquisition/ TTS	AQS-20 Prototype				PUMA V2.0 (Bathymetry)				DEM/VAL				PUMA V3.0 (Vol So/Vel)				SubCTD				DEM/VAL				Next Generation NCOM				DEM/VAL				Next Generation TTS				
Information Management/ DMAP		▲			Navy Unique				▲				Navy Unique				▲				Navy Unique				▲				Navy Unique				▲				
Littoral Battlespace Sensing									Database development/integration				DEM/VAL				Network Integration				DEM/VAL				Next Gen Database development/integration												

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* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-2a, RDTEN Project Justification
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EXHIBIT R-2a, RDT&E Project Justification					DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	6.825	7.850	9.598	10.949	11.085	11.861	11.279	11.554
RDT&E Articles Qty								
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The meteorological and oceanographic (METOC) Data Assimilation Project is a multi-faceted project that provides future mission capabilities for warfighters to characterize the physical environment within their battlespace. This project includes: 1) development, demonstration and validation of atmospheric and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in both mainframe and tactical scale computers. Included are numerical oceanographic and atmospheric models for the Large Scale Computers at the Navy Fleet Numerical Meteorology and Oceanography Center, Monterey, CA and the Naval Oceanographic Office, Stennis Space Center, MS. These models, combined with a global communications network for data acquisition and distribution, form a prediction system which provides METOC data and products necessary to support naval operations worldwide in virtually every mission area; 2) other models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) techniques to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder; 4) National Polar-orbiting Operational Environmental Satellite System (NPOESS) readiness and risk reduction preparations to develop hardware and software that will allow ground stations to receive, ingest and exploit the NPOESS Preparatory Project (NPP) data. These techniques allow for the integration and tactical application of significant oceanographic and atmospheric data derived from satellite-borne sensors. Included are techniques and algorithms for the processing of sensor measurements, conversion of raw signal data to geophysical information, analysis schemes encompassing Artificial Intelligence and Expert Systems, and other satellite data applications and field validation of end products; and, 4) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products. As weapons and sensors become more sophisticated and complex, the marine environment has an increasingly significant impact on system performance. Operational limitations induced by the ocean and atmosphere must be understood, and the resulting constraints on mission effectiveness and system employment minimized. Hence, the operating forces require more accurate worldwide forecasts of METOC conditions with increased temporal and spatial resolution. An additional challenge is posed by the emergence of new satellite sensors, which are continually adding new sources of disparate data types. In order to fully exploit this dynamic and massive volume of data, modern data base management systems (DBMS) are required, and must be tailored for individual computer configurations. Improved representation of smaller-scale phenomena, particularly in the littoral, is also an important consideration.</p> <p>Intelligence Preparation of Battlespace Sensor R&D to meet CNO and CFFC requirements for remote autonomous, clandestine, littoral battlespace sensing in near shore areas in support of Sea Shield & Sea Basing.</p>								

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Exhibit R-2a, RDTEN Project Justification
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EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling	
(U) B. Accomplishments/Planned Program			
Modeling and Simulation	FY 04	FY 05	FY 06
Accomplishments/Effort/Subtotal Cost	0.682	0.347	0.398
RDT&E Articles Quantity			
<p>FY04 - Delivered atmospheric volume data to DoD Modeling & Simulations community. Development of improved ocean volume data. Incremental development of modeling and simulation of atmospheric and ocean environmental effects on Navy systems.</p> <p>FY05 - Deliver Navy data inputs to support establishment of the Joint Modeling and Simulations Center (USAF Combat Climatology Center).</p> <p>FY06 - Deliver next increment of the Joint Modeling and Simulations Center (USAF Combat Climatology Center) Navy Data Inputs to Joint Modeling and Simulations Center (USAF Combat Climatology Center). Develop Naval METOC data M&S capabilities to support the Joint Modeling and Simulations Center.</p> <p>FY07 - Deliver Joint Modeling and Simulations support capabilities to Naval Oceanography Command (NAVOCEANO).</p>			
Coupled Data Assimilation	FY 04	FY 05	FY06
Accomplishments/Effort/Subtotal Cost	0.319	0.396	0.513
RDT&E Articles Quantity			
<p>FY04 - Completed development of variational techniques for coupled assimilations. Development of NRL Atmospheric Variational Data System (NAVDAS) Version 2 prototype and coupled data assimilation techniques incorporating Automated Expert Systems.</p> <p>FY05 - Deliver NRL Atmospheric Variational Data System (NAVDAS) Version 2. Development of next generation coupled assimilation techniques incorporating Automated Expert Systems.</p> <p>FY06 - Begin operational test of NRL Atmospheric Variational Data System (NAVDAS) Version 3. Re-code NAVDAS to conform to Weather Research and Forecasting (WRF) compatibility requirements. Development of next generation coupled assimilation techniques incorporating direct satellite derived radiance data.</p> <p>FY07 - Complete NRL Atmospheric Variational Data System (NAVDAS) Version 3 OPTTEST and deliver to FNMOC. Investigate and incorporate Automated Techniques into the next generation data assimilation system. Re-code NRL Atmospheric Variational Data System (NAVDAS) to conform to Weather Research and Forecasting (WRF) compatibility requirements.</p>			
Fleet Exercises	FY 04	FY 05	FY06
Accomplishments/Effort/Subtotal Cost	0.522	0.941	0.915
RDT&E Articles Quantity			
<p>FY04 - Participated in selected Naval Exercises and delivered post exercise strawman and final reports.</p> <p>FY05 - Participate in selected Naval Exercises and deliver post exercise strawman and final reports. Expand scope of fleet exercise participation to include integrated multi-sensor (data collection to application) demonstrations.</p> <p>FY06 - Participate in selected Naval Exercises and deliver post exercise strawman and final reports.</p> <p>FY07 - Participate in selected Naval Exercises and deliver post exercise strawman and final reports.</p>			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																																														
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<p>(U) B. Accomplishments/Planned Program</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td style="width: 30%;">High-Resolution Forecast Models</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.652</td> <td>0.787</td> <td>0.850</td> <td>0.923</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>FY04 - Delivered Message Passage Interface (MPI)/Distributed Shared Memory (DSM) version of Coupled Atmospheric Mesoscale Prediction Systems (COAMPS). FY05 - Deliver prototype advanced land-surface modeling system for integration into Coupled Atmospheric Mesoscale Prediction Systems (COAMPS). FY06 - Deliver Version 3 of Coupled Atmospheric Mesoscale Prediction Systems (COAMPS). Re-code Coupled Atmospheric Mesoscale Prediction Systems (COAMPS) to conform to Weather Research and Forecasting (WRF) compatibility requirements. FY07 - Complete demonstration and validation of Version 3. Deliver validated version to FNMOC. Re-code Coupled Atmospheric Mesoscale Prediction Systems (COAMPS) to conform to Weather Research and Forecasting (WRF) compatibility requirements. Explore incorporation of high-resolution Aerosol analyses and forecasts.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td style="width: 30%;">Basin Scale Ocean Models</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.064</td> <td>0.839</td> <td>0.845</td> <td>1.042</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>FY04 - Completed the transition of the East Asian Sea (EAS) model. Incremental development of coastal and enclosed basin tactical scale oceanographic models. FY05 - Develop prototype Adriatic Sea model. Complete development of next generation coastal and enclosed basin tactical scale oceanographic models. Complete validation of the EAS model. FY06 - Complete the transition of Adriatic Sea model. Transition rapid relocatability capability. Incremental development of coupled air/ocean models for selected geographical locations in response to emergent requirements. FY07 - Incremental development of coupled air/ocean models for selected geographical locations in response to emergent requirements. Development of the Arabian Gulf model.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td style="width: 30%;">Data Assimilation</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.313</td> <td>0.688</td> <td>0.716</td> <td>0.823</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>FY04 - Transitioned FMQ-17 modules. Development of next generation new capabilities to assimilate and quality control METOC data from satellite sensors and conventional data sources. FY05 - Transition applications using WindSat, Meteosat Second Generation (MSG), the Special Sensor Microwave Imager and Sounder (SSMIS), and MTSAT (Japanese replacement). FY06 - Continue to transition applications using next generation WindSat, Meteosat Second Generation (MSG), the Special Sensor Microwave Imager and Sounder (SSMIS), and MTSAT (Japanese replacement). FY07 - Incorporation of Automated Expert System techniques.</p> </div>					High-Resolution Forecast Models	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.652	0.787	0.850	0.923	RDT&E Articles Quantity					Basin Scale Ocean Models	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.064	0.839	0.845	1.042	RDT&E Articles Quantity					Data Assimilation	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.313	0.688	0.716	0.823	RDT&E Articles Quantity				
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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling		

(U) B. Accomplishments/Planned Program

Automated Objective Processing	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.674	0.960	0.974	1.181
RDT&E Articles Quantity				

FY04 - Delivered performance metrics for the baseline global Navy Coastal Ocean Model (NCOM) prediction system. Completed development of techniques for bathymetry and surf zone and high-resolution micro-topography algorithms and automated objective processing in the littoral.

FY05 - Deliver data assimilation upgrades.

FY06 - Deliver prototype global Navy Coastal Ocean Model (NCOM) prediction system upgrades to the Naval Oceanography Command for testing.

FY07 - Complete testing and validation of the global Navy Coastal Ocean Model (NCOM) prediction system upgrade. Development of next generation assimilation methods for high-resolution surf zone bathymetry into coupled air/ocean forecast models.

Tide/Surf Data Visualization	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.339	0.356	0.363	0.432
RDT&E Articles Quantity				

FY04 - Delivered UNIX version of PCTides. Incorporated Topographic Exercise (TOPEX)/Poseidon data into Surf Model. Development of next-generation tide and surf models.

FY05 - Develop and deliver documentation for Atmospheric Modeling Oversight Panel Transition to Naval Oceanography Command (NAVOCEANO) for approval.

FY06 - Finalize approved documentation and deliver Version 1 to Ocean Atmosphere Master Library (OAML).

FY07 - Deliver prototype Version 2 which incorporates four dimensional visualization to Naval Oceanography Command (NAVOCEANO) for testing and validation. Incremental development of tide and surf models.

NEXGEN Acoustic Models	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.885	1.150	1.044	1.167
RDT&E Articles Quantity				

FY04 - Upgraded to new Ocean Atmosphere Master Library (OAML) models for Parabolic Equation (PE) and Comprehensive Acoustic System Simulation (CASS)/Gauissin Ray Bundle (GRAB). Semi-Empirical Surface Scattering Strength Algorithm (SESSS) Version 1 completed and delivered.

FY05 - Deliver Semi-Empirical Surface Scattering Strength Algorithm (SESSS) Version 2. Incorporate Digital Bathymetric Database (DBDB) Version 5 APIs and consolidate existing databases, upgrade NAUTILUS run options.

FY06 - Incorporate variable range-step option in Range Acoustic Model (RAM) 4.0, consolidate disparate bottom databases into one consolidated database Geoacoustic Database Variable Resolution (GDB-V). Integrate latest acoustic models into the Geo Acoustic Inversion Toolkit (GAIT).

FY07 - Demonstrate and validate RAM 4.0 and deliver to Ocean Atmosphere Master Library (OAML). Complete bottom database consolidation. Integrate latest acoustic models into the Geo Acoustic Inversion Toolkit (GAIT). Incorporate Automated Expert Systems model selection algorithms into the next generation Range Acoustic Model (RAM).

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(U) B. Accomplishments/Planned Program				
Shallow Water Acoustics	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.773	0.792	0.795	1.226
RDT&E Articles Quantity				
<p>FY04 - Completed initial assessment of Comprehensive Acoustic System Simulation (CASS) and Active System Performance Model (ASPM) and delivered initial report. Development of incremental mid-frequency bottom loss/bottom scatter models and databases for shallow water environments.</p> <p>FY05 - Complete final Comprehensive Acoustic System Simulation (CASS)/Active System Performance Model (ASPM) assessment and deliver final report. Integrate multistatics modeling and performance prediction techniques.</p> <p>FY06 - Begin development of a fully automated version of Geophysical Acoustic Inversion Toolkit (GAIT). Integration of uncertainty predictions into Fleet Tactical Decision Aids (TDAs).</p> <p>FY07 - Complete integration of uncertainty into Fleet Tactical Decision Aids (TDAs). Continue development of next generation mid-frequency bottom loss/bottom scatter models and databases for shallow water environments. Development of a fully automated version of Geophysical Acoustic Inversion Toolkit (GAIT).</p>				
Fleet Applications and Data Verification & Validation	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.602	0.594	0.728	0.737
RDT&E Articles Quantity				
<p>FY04 - 07 New applications and data are delivered from the program and require verification and validation on an annual basis.</p> <p>FY04 - Delivered Annual Report.</p> <p>FY05 - Deliver Annual Report.</p> <p>FY06 - Deliver Annual Report.</p> <p>FY07 - Deliver Annual Report.</p>				
Littoral Battlespace Sensor Data Assimilation	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.457	0.998
RDT&E Articles Quantity				
<p>FY06 - Develop and deliver initial engineering documentation. Develop in-depth data assimilation methods to support various evolving littoral sensors such as the Battle Space Profiler Autonomous Undersea Vehicle (BPAUV), Next Generation Upper Air Sensor, Seaglider, and Helicopter and/or Unmanned Aerial Vehicle (UAV) specific sensors. Develop new sensors and/or reconfigure existing littoral sensors to support littoral Undersea Warfare (USW), Mine Warfare (MIW), Special Operations (SPECOPS) and other Naval Operations.</p> <p>FY07 - Develop in-depth next generation data assimilation methods to support various evolving littoral sensors such as the Battle Space Profiler Autonomous Undersea Vehicle (BPAUV), Next Generation Upper Air Sensor, Seaglider, and Helicopter and/or Unmanned Aerial Vehicle (UAV) specific sensors. Demonstrate prototype sensors and deliver post-demonstration report.</p>				

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling		

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY05 President's Budget	7.142	7.927	8.188	9.872
FY06 President's Budget	6.825	7.850	9.598	10.949
Total Adjustments	(0.317)	(0.077)	1.410	1.077
Summary of Adjustments				
Congressional Adjustments				
Congressional Rescissions		(0.075)		
Reprogrammings	(0.247)			
Programmatic Adjustments		(0.002)	1.386	0.988
Economic Assumptions			0.021	0.031
Pricing Adjustments			0.003	0.058
SBIR/STTR Transfers	(0.070)			
Subtotal	(0.317)	(0.077)	1.410	1.077

(U) Schedule:

Littoral Battlespace Sensor Data Assimilation is added to the schedule.

(U) Technical:

Not applicable.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling
<p>(U) D. OTHER PROGRAM FUNDING SUMMARY:</p> <p><u>Line Item No. & Name</u></p> <p>Not applicable.</p> <p>(U) E. ACQUISITION STRATEGY:</p> <p>Acquisition, management and contracting strategies to support the meteorological and oceanographic (METOC) Data Assimilation Project which is a multi-faceted program which includes: 1) development, demonstration and validation of atmospheric and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in both mainframe and tactical scale computers; 2) other models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) techniques to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder; and, 4) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products, all with management oversight by Program Executive Officer for Command, Control, Communications, Computers, and Intelligence and Space (PEO C4I & Space).</p> <p>(U) F. MAJOR PERFORMERS:</p> <p>N/A</p> <p>(U) G. METRICS:</p> <p>Earned Value Management (EVM) is used for metrics reporting and risk management.</p>		

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Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			PE 0603207N Air/Ocean Tactical Applications			2342 METOC Data Assimilation and Modeling						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NRL	50.283	6.247	N/A	7.646	N/A	8.752	N/A	CONT	CONT	
	WX	NAWC-WD, Pax	1.520	0.208	N/A	0.253	N/A	0.285	N/A	CONT	CONT	
	PD	APL	0.985	0.290	N/A	0.353	N/A	0.397	N/A	CONT	CONT	
	Grant	Univ. S. Miss.	2.413	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CP	Neptune	1.001	0.325	N/A	0.396	N/A	0.445	N/A	CONT	CONT	
	CP	New Age	0.700	0.325	N/A	0.396	N/A	0.445	N/A	CONT	CONT	
	N/A	MISC	12.033	0.455	N/A	0.554	N/A	0.623	N/A	CONT	CONT	
Subtotal Software Development			68.935	7.850		9.598		10.949		CONT	CONT	
Remarks:												
Systems Engineering	CP	SSA/CSC	0.295	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Subtotal Support			0.295	0.000		0.000		0.000		CONT	CONT	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)									DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE&E, N / BA-4			PE 0603207N Air/Ocean Tactical Applications			2342 METOC Data Assimilation and Modeling						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			69.230	7.850		9.598		10.949		CONT	CONT	
Remarks:												

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EXHIBIT R4, Schedule Profile																								DATE:												
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME																
RDT&E, N / BA-4										PE 0603207N Air/Ocean Tactical Applications										2342 METOC Data Assimilation and Modeling																
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Modeling and Simulation	Arm Vol Data				Joint M&S Center				Joint M&S Center				Joint M&S Center				DEM/VAL				Joint M&S Center				DEM/VAL				Joint M&S Center				DEM/VAL			
Coupled Data Assimilation	NAVDAS 2.0				DEM/VAL				NAVDAS 3.0				DEM/VAL				Automated Techniques				DEM/VAL				Automated Expert Systems Techniques				DEM/VAL				DEM/VAL			
Fleet Exercises/Demos	DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL			
High Resolution Coupled Models	COAMPS MF/DSM				COAMPS Land/Stc				Moving Nested Grid				DEM/VAL				Aerosol Predictions				DEM/VAL				NextGen Hi-Res				COAMPS				DEM/VAL			
Basin Scale Ocean Models	East Asian Sea				DEM/VAL				Adriatic Sea				DEM/VAL				Arabian Gulf				DEM/VAL				Emergent Requirements				DEM/VAL				Emergent Requirements			
Data Assimilation	FMQ-17 Upgrades				DEM/VAL				WindSat, MSG, SSMIS, MTSAT				DEM/VAL				Automated Expert System Techniques				DEM/VAL				NextGen Satellites				DEM/VAL				NextGen Satellites			
Automated Objective Processing	Micro-topography algorithms				DEM/VAL				Data Assimilation Upgrades				DEM/VAL				Global NCOM				DEM/VAL				High Res Al				DEM/VAL				NextGen Hi-Res Coupled Models			
Tide/Surf/Data Visualization	PC-Tides				AMOP Doc				DEM/VAL				4-D Visualization				DEM/VAL				Network Integration				DEM/VAL				DEM/VAL							
Next Generation Acoustic Models	RAM PE/CASS/GRAB				DEM/VAL				SESSS V2.0				Database Consolidation				DEM/VAL				Automated Expert System Model Selection				DEM/VAL				Full Physics Single Model				DEM/VAL			
Shallow Water Acoustics	CASS/GRAB Assessment				DEM/VAL				GAIT Ver 2.0				DEM/VAL				GAIT Ver 3.0 (Full Automation)				DEM/VAL				AI Inversions				DEM/VAL				NextGen GAIT			
Fleet Apps Product and Data V&V	DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL				DEM/VAL			
Littoral Battlespace Sensor Data Assimilation									Sensor Development/Reconfiguration				DEM/VAL				Network Integration				DEM/VAL				Next Generation Littoral Sensors				DEM/VAL							

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Exhibit R-2a, RD TEN Project Justification
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Exhibit R-2a, RDTEN Project Justification
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EXHIBIT R-2a, RDT&E Project Justification						DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2343 Tactical METOC Applications			
COST (\$ in Millions)		FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010
Project Cost		6.222	6.630	7.007	8.674	8.872	9.045	9.250
RDT&E Articles Qty								
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The METOC Data Applications Project provides future operational effects decision aid capabilities for Navy and Marine Corps warfighters in the context of Joint Operations. This project identifies and transitions state-of-the-art decision support software technologies from the Government's and Commercial Industry's technology base and then demonstrates and validates these capabilities before fielding. These future software decision support tools are intended to provide platform, sensor, communications, and weapon systems performance assessments for warfighters in terms of their littoral and deep-strike battlespace environments. These assessments allow mission planners and warfighters, from the unit to theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of all Naval Composite Warfare mission areas including Undersea Warfare (USW), Anti-Submarine Warfare (ASW), Mine Warfare (MIW), Amphibious Warfare (AMW), Anti-Surface Warfare (ASUW), Anti-Air Warfare (AAW), Strike Warfare (STW), and Special Warfare. Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) METOC Decision Aids (MDAs); and, 2) Operational Effects Decision Aids (OEDAs). MDAs consist of a series of analysis tools which characterize the physical environment conditions of the battlespace based on the best set of physical environment data available at the time (i.e., some combination of historical and/or real-time (or near real-time) in-situ data. OEDAs then use the MDA information by fusing it with relevant, often-classified sensor and target data to predict how own-force weapons and sensor systems will perform against hostile targets. Performance results are displayed in tabular and graphic formats for use by mission planners and combat/weapon system operators to develop ASW and MIW search and localization plans, USW/AAW/ASUW screens, STW profiles, AMW ingress and egress points, and for other warfare considerations. MDAs and OEDAs typically use data derived from sensors developed in Project X2341 (METOC Data Acquisition) and assimilated by software produced by Project X2342 (METOC Data Assimilation and Modeling). MDAs and OEDAs also use data obtained through direct interfaces to Navy combat systems. A current emphasis area of the project is the development of new combat system and mine warfare performance prediction and MDA/OEDA capabilities required to characterize and/or predict sensor and weapons system performance in the highly complex littoral environments in support of regional conflict scenarios. It addresses multi-warfare areas, particularly Mine Warfare, shallow water ASW, and missile and air defense/strike capabilities.</p>								

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(U) B. Accomplishments/Planned Program				
Electromagnetic and Electro-optical (EM/EO) Decision Aids	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.975	1.168	1.210	1.691
RDT&E Articles Quantity				
<p>FY04 - Completed development of an advanced electro-optical decision aid incorporating artificial intelligence techniques. Delivered the Target Acquisition Weather Software (TAWS) Version 4. Implemented new sensor data and backgrounds consistent with US Navy and US Marine Corp missions.</p> <p>FY05 - Complete development of Target Acquisition Weather Software (TAWS) and deliver Version 5 including new sensor data and backgrounds consistent with US Navy and US Marine Corp missions.</p> <p>FY06 - Development of Target Acquisition Weather Software (TAWS) Version 6 to include new sensor data and backgrounds consistent with Joint Operations. Development of upgrades to next generation electromagnetic and electro-optical (EM/EO) performance prediction systems to include incorporation of new Naval and Joint Sensor Suites.</p> <p>FY07 - Development of Target Acquisition Weather Software (TAWS) Version 7 to include new sensor data and backgrounds consistent with Joint Operations. Development of upgrades to next generation electromagnetic and electro-optical (EM/EO) performance prediction systems to include increased automation and fully compliant Network functionality.</p>				
Mine Littoral Warfare Tactical Decision Aids (TDA)	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.084	1.865	1.925	1.805
RDT&E Articles Quantity				
<p>FY04 - Completed the incorporation of prototype Mine Warfare tactical decision aids in baseline surface ship, air and submarine performance prediction systems. Completed integration of Mine Warfare Environmental Data Applications Library (MEDAL)/Tactical Environmental Data Services (TEDS) integration. Developed and incorporated additional mine littoral warfare decision aids in applicable performance prediction systems.</p> <p>FY05 - Deliver Mine Warfare Environmental Data Applications Library (MEDAL) Build 10.</p> <p>FY06 - Development to incorporate additional mine littoral warfare decision aids in applicable performance prediction systems. Develop Mine Warfare Environmental Data Applications Library (MEDAL) Build 11 to include the incorporation of the new Geoacoustic Database - Variable Resolution (GDB-V) as well as the incorporation of the new Battlespace Profiling System (BPS).</p> <p>FY07 - Deliver Mine Warfare Environmental Data Applications Library (MEDAL) Build 11 for fleet demonstration and validation. Begin combat system integration upon completion of development and validation. Develop Mine Warfare Environmental Data Applications Library (MEDAL) Build 11 to include the incorporation of new Mine Warfare (MIW) databases.</p>				
Tactical Decision Aids (TDA) COTS Visualization	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.303	1.547	1.644	1.949
RDT&E Articles Quantity				
<p>FY04 - Delivered prototype Tactical Tomahawk Weapon Control System METOC Interface. Performed at-sea evaluation of new capabilities. Completed the application of advanced COTS visualization techniques to facilitate operator understanding of complex littoral environmental effects on sensor performance. Developed multi-dimensional Tactical Decision Aid (TDA) COTS visualization techniques and integrate into appropriate platform Advanced Development Models (ADMs).</p> <p>FY05 - Deliver 4D-Vis prototype. Deliver technical reports. Incremental development of next generation multi-dimensional Tactical Decision Aid (TDA) COTS visualization techniques and integrate into appropriate platform Advanced Development Models (ADMs).</p> <p>FY06 - Development of Network integration via Commercial Joint Mapping Tool Kit (CJMTK) and integration of evolving GIS based technology.</p> <p>FY07 - Complete demonstration and validation of software. Complete development of Network integration via Commercial Joint Mapping Tool Kit (CJMTK) and integration of evolving GIS based technology.</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2343 Tactical METOC Applications		

(U) B. Accomplishments/Planned Program

Platform Vulnerability	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.967	0.989	1.106	1.601
RDT&E Articles Quantity				

FY04 - Delivered platform vulnerability assessment Tactical Decision Aid (TDA) Version 2 into surface ship, submarine and air ADMs to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluated functionality during at-sea tests. Delivered technical reports. Evolutionary development of Tactical Decision Aid (TDA) .

FY05 - Deliver platform vulnerability assessment Tactical Decision Aid (TDA) Version 3 into surface ship, submarine and air ADMs to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluate functionality during at-sea tests. Deliver technical reports.

FY06 - Development of Tactical Decision Aid (TDA) Version 4 to include integration of new electromagnetic and electro-optical (EM/EO), Target Acquisition Weather Software (TAWS), and advanced visualization techniques such as 4D Visualization.

FY07 - Deliver Tactical Decision Aid (TDA) Version 4. Begin evolutionary development of Tactical Decision Aid (TDA) Version 5 to include integration of newly emerging non-acoustic sensor prediction capabilities.

Sensor Interface Capabilities	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.893	1.061	1.122	1.628
RDT&E Articles Quantity				

FY04 - Development of environmental sensor interface capabilities. Performed Preliminary Design Review (PDR) and Critical Design Review (CDR) for Build 2.5.

FY05 - Develop and deliver Build 3.0. Deliver technical reports. Incremental development of environmental sensor interface capabilities.

FY06 - Evolutionary development of Build 3.5. Evaluate functionality during at-sea tests and deliver technical reports.

FY07 - Deliver Build 3.5 and continue evolutionary development of Build 4.0.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																																																																		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2343 Tactical METOC Applications																																																																			
<p>(U) C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">(U) Funding:</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">6.477</td> <td style="text-align: right;">6.695</td> <td style="text-align: right;">6.998</td> <td style="text-align: right;">8.635</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">6.222</td> <td style="text-align: right;">6.630</td> <td style="text-align: right;">7.007</td> <td style="text-align: right;">8.674</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">(0.255)</td> <td style="text-align: right; border-top: 1px solid black;">(0.065)</td> <td style="text-align: right; border-top: 1px solid black;">0.009</td> <td style="text-align: right; border-top: 1px solid black;">0.039</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td style="padding-left: 20px;">Congressional Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Recissions</td> <td></td> <td style="text-align: right;">(0.063)</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Reprogrammings</td> <td style="text-align: right;">(0.101)</td> <td style="text-align: right;">(0.002)</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Programmatic Adjustments</td> <td></td> <td></td> <td style="text-align: right;">(0.038)</td> <td style="text-align: right;">(0.056)</td> </tr> <tr> <td style="padding-left: 20px;">Economic Assumptions</td> <td></td> <td></td> <td style="text-align: right;">0.058</td> <td style="text-align: right;">0.092</td> </tr> <tr> <td style="padding-left: 20px;">Pricing Adjustments</td> <td></td> <td></td> <td style="text-align: right;">(0.011)</td> <td style="text-align: right;">0.003</td> </tr> <tr> <td style="padding-left: 20px;">SBIR/STTR Transfers</td> <td style="text-align: right;">(0.154)</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">(0.255)</td> <td style="text-align: right; border-top: 1px solid black;">(0.065)</td> <td style="text-align: right; border-top: 1px solid black;">0.009</td> <td style="text-align: right; border-top: 1px solid black;">0.039</td> </tr> </tbody> </table> <p style="margin-top: 40px;">(U) Schedule:</p> <p style="margin-top: 40px;">(U) Technical: Not applicable.</p>					(U) Funding:	FY 2004	FY 2005	FY 2006	FY 2007	FY05 President's Budget	6.477	6.695	6.998	8.635	FY06 President's Budget	6.222	6.630	7.007	8.674	Total Adjustments	(0.255)	(0.065)	0.009	0.039	Summary of Adjustments					Congressional Adjustments					Congressional Recissions		(0.063)			Reprogrammings	(0.101)	(0.002)			Programmatic Adjustments			(0.038)	(0.056)	Economic Assumptions			0.058	0.092	Pricing Adjustments			(0.011)	0.003	SBIR/STTR Transfers	(0.154)				Subtotal	(0.255)	(0.065)	0.009	0.039
(U) Funding:	FY 2004	FY 2005	FY 2006	FY 2007																																																																	
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EXHIBIT R-2a, RDT&E Project Justification						DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2343 Tactical METOC Applications			

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
RDTE								
PE 0604218N (Air/Ocean Equipment Engineering	2.851	4.461	4.558	5.69	5.841	5.949	6.085	6.195

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the METOC Data Applications project to continue the development of state-of-the-art software capabilities that provide sensor, communication, and weapon system performance assessments across the full spectrum of open ocean and littoral operating environments, meteorology and oceanography , all with management oversight by Program Executive Officer for Command, Control, Communications, Computers, and Intelligence and Space (PEOC4I & Space).

(U) F. MAJOR PERFORMERS:

N/A

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			PE 0603207N Air/Ocean Tactical Applications			2343 Tactical METOC Applications						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NUWC	1.400	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	SSC SD	2.775	0.335	N/A	0.349	N/A	0.430	N/A	CONT	CONT	
	WX	NRL	1.761	0.285	N/A	0.297	N/A	0.366	N/A	CONT	CONT	
	CP	NAVSEA	30.167	5.746	N/A	6.087	N/A	7.539	N/A	CONT	CONT	
	CP	LOCKHEAD	1.053	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	N/A	MISC	5.720	0.264	N/A	0.275	N/A	0.339	N/A	CONT	CONT	
Subtotal Product Development			42.876	6.630		7.007		8.674		0.000	65.187	
Remarks:												
	CP	IPD	0.595	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Subtotal Support			0.595	0.000		0.000		0.000		CONT	CONT	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2343 Tactical METOC Applications						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			43.471	6.630		7.007		8.674		CONT	CONT	
Remarks:												

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EXHIBIT R4, Schedule Profile																							DATE:												
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-4												PE 0603207N Air/Ocean Tactical Applications												2343 Tactical METOC Applications											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
EM/EO Decision Aids	▲	Advanced	EM/EO	DEM/VAL		Next Gen	EM/EO			TAWS 6.0	DEM/VAL		Adv	EM/EO using AI	TAWS 7.0	DEM/VAL		TAWS Target Upgrades		DEM/VAL				▲	EM/EO	Sensor/Tgt Upgrades									
Mine Warfare TDAs		MEDAL/TEDS Integration	DEM/VAL						MEDAL Build 10	DEM/VAL	▲	MIW Database Upgrades	DEM/VAL	▲				MEDAL-TTS Upgrades		DEM/VAL				▲	NEXGEN MIW TDA	DEM/VAL		▲							
TDA COTS Visualization			Advanced VIS	DEM/VAL			4D Vis Prototype			GIG ES/FORENet Integration	DEM/VAL	▲					Advanced Interactive Holographic Techniques	DEM/VAL	▲						NEXGEN Vis	DEM/VAL						▲			
Platform Vulnerability		TDA V2.0	DEM/VAL	▲		▽	TDA V3.0			TDA V3.0	DEM/VAL	▲	▽	Non-Acoustic Vul	DEM/VAL	▲		Multi-Ship Vul	DEM/VAL	▲				▲	Remote Sensing	DEM/VAL					▲				
Sensor Interface Capabilities	▲	Build 2.5	DEM/VAL				Build 3.0			DEM/VAL		Build 3.5		Conventional Measurements	DEM/VAL		▽	Remote Sensing/Data Monitoring	DEM/VAL	▲				▲	NEXGEN Sensor Integration	DEM/VAL					▲				

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* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-2a, RD TEN Project Justification
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R-1 SHOPPING LIST - Item No. 30

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EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	1.097	1.250	1.304	1.584	0.508	0.298	0.303	0.309
RDT&E Articles Qty								
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The major thrust of the Precise Timing and Astrometry Project is to provide future capabilities that directly support the mission of the U.S. Naval Observatory (USNO). These future mission capabilities are intended to:</p> <p>1) address DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions (including objects at other than optical wavelengths) and the stellar inertial reference system (to which all navigation, guidance, and positioning systems are ultimately referred); 2) develop techniques for the prediction of the Earth's instantaneous orientation with respect to the stellar inertial reference system; 3) oversee the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks; and, 4) develop advanced electronic light detectors and interferometry in the optical and infrared wavelength regions for very precise determination of the positions of both faint and bright stars, satellite tracking, and space debris studies. DoD Instruction 5000.2 assigns to the Navy the responsibility for coordinating Precise Time and Time Interval (PTTI) requirements and for maintaining a PTTI reference standard (astronomical and atomic) for use by all DoD Services, Federal agencies, and related scientific laboratories. The Navy is also responsible for providing astronomical data for navigation, positioning, and guidance, including space. Some operational and many emerging requirements surpass current support capabilities. In response to these DoD requirements, this project transitions Research (6.1) and Exploratory Development (6.2) efforts, as well as developments in the civilian sector, into the operational capabilities of the USNO.</p>								

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 32 of 39)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry		
(U) B. Accomplishments/Planned Program				
Time Transfer	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.290	0.350	0.375	0.530
RDT&E Articles Quantity				
<p>FY04 - Developments of next-generation time transfer capabilities. Installed upgraded capability.</p> <p>FY05 - Deliver technical reports. Incremental developments of time transfer techniques.</p> <p>FY06 - Development of next generation GPS Independent Time Transfer.</p> <p>FY07 - Developments of next generation time transfer techniques incorporating neural networks to improve accuracy.</p>				
Earth Orientation/Astrometry	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.335	0.370	0.393	0.530
RDT&E Articles Quantity				
<p>FY04 - VLBI/GPS demonstrations for earth orientation parameters. Delivered improvements for GPS upgrades.</p> <p>FY05 - Evolutionary developments of next-generation earth orientation techniques. Deliver technical reports.</p> <p>FY06 - Complete SASM Rx Demo. Complete Orion Array Prototype Detector. Incremental development of next generation earth orientation techniques (Astrometric Telescope).</p> <p>FY07 - Deliver USNO Robotic Astrometric Telescope development. Incremental development of earth orientation techniques.</p>				
Master Clock	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.472	0.530	0.536	0.524
RDT&E Articles Quantity				
<p>FY04 - Delivered and install upgraded Master Clock. Continued exploitation of emergent Master Clock technologies.</p> <p>FY05 - Perform initial testing of next generation Master Clock. Exploitation of emergent Master Clock technologies (Ribidium Fountain).</p> <p>FY06 - Deliver Ribidium Fountain Prototype. Perform initial testing and complete initial Technical Reports.</p> <p>FY07 - Complete Ribidium Fountain testing. Perform initial development of Mercury Ion Clock.</p>				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry		

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY05 President's Budget	1.148	1.261	1.299	1.573
FY06 President's Budget	1.097	1.250	1.304	1.584
Total Adjustments	-0.051	-0.011	0.005	0.011
Summary of Adjustments				
Congressional Adjustments				
Congressional Recissions		-0.011		
Reprogrammings	-0.049			
Programmatic Adjustments			-0.008	-0.009
Economic Assumptions			0.013	0.020
Pricing Adjustments				
SBIR/STTR Transfers	-0.002			
Subtotal	-0.051	-0.011	0.005	0.011

(U) Schedule:

(U) Technical:
Not applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications	PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry
<p>(U) D. OTHER PROGRAM FUNDING SUMMARY:</p> <p><u>Line Item No. & Name</u></p> <p>Not applicable.</p> <p>(U) E. ACQUISITION STRATEGY:</p> <p>Acquisition, management and contracting strategies are to support the Precise Timing and Astrometry Project in direct support of the U.S. Naval Observatory (USNO) in: 1) addressing DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions and the stellar inertial reference system ; 2) developing techniques for the prediction of the Earth's instantaneous orientation with respect to the stellar inertial reference system; 3) overseeing the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks; and, 4) developing advanced electronic light detectors and interferometry in the optical and infrared wavelength regions for very precise determination of the positions of both faint and bright stars, satellite tracking, and space debris studies, all with management oversight by Program Executive Officer for Command, Control, Communications, Computers, and Intelligence and Space (PEOC4I & Space).</p> <p>(U) F. MAJOR PERFORMERS:</p> <p>N/A</p>		

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			PE 0603207N Air/Ocean Tactical Applications			2344 Precise Timing and Astrometry						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	Naval Observatory	8.115	1.250	N/A	1.304	N/A	1.584	N/A	CONT	CONT	
	N/A	MISC	0.094	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Subtotal Software Development			8.209	1.250		1.304		1.584		CONT	CONT	
Remarks:												
Subtotal Support			0.000	0.000		0.000		0.000		CONT	CONT	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			8.209	1.250		1.304		1.584		CONT	CONT	
Remarks:												

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 37 of 39)

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: FEBRUARY 2005								
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N /												PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications								PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Time Transfer	Neural Networks				DEM/VAL				DEM/VAL				GPS Independent TT				Neural Networks				DEM/VAL				Advanced Time Transfer				DEM/VAL			
Earth Orientation	DEM/VAL				Full-Sky Astrometric Mapping Explorer				Orion Array - Prototype Detector				DEM/VAL				USNO Robotic Astrometric Telescope				Full-Sky Astrometric Mapping Explorer				DEM/VAL				DEM/VAL			
Master Clock					DEM/VAL				DEM/VAL				Rbidium Fountain Prototype				Mercury Ion Clocks				DEM/VAL				Pulsar Profile Technology				DEM/VAL			

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 39 of 39)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE			
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					0603216N Aviation Survivability			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	16.992	39.062	6.255	6.355	6.492	6.627	6.759	6.902
0584 Aircrew Protective Clothing and Devices	3.794	4.519	2.834	2.512	2.564	2.618	2.672	2.727
0591 Aircraft Survivability, Vulnerabilty and Safety	2.951	6.080	1.572	1.601	1.639	1.671	1.703	1.740
0592 A/C & Ordnance Safety	1.345	1.237	1.278	1.536	1.568	1.601	1.633	1.667
1819 Carrier Vehicle Aircraft Fire Suppression	0.739	0.583	0.571	0.706	0.721	0.737	0.751	0.768
9170 Modular Advanced Vision System	2.330	4.160						
9173 Rotorcraft External Airbag	3.390	3.764						
9346 Equipment Life Extension Program	2.443	1.485						
9505 Advanced Maritime Technology Center		1.882						
9506 Integrated Manifold & Tube Ceramic Oxygen Gen		4.160						
9507 Intelligent Autonomy Technology Transition		2.476						
9508 Intelligent Control System for SWARM		3.764						
9510 Silver Fox UAV		4.952						
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Aviation Survivability addresses the issues of aircrew and platform survivability, focusing on enhancing overall opportunity for aircrew and platform protection and enhanced performance. The capabilities addressed under this program element counter emerging threats of next generation operational weapons systems and enhance combat effectiveness in future operational mission scenarios.								

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 68)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /BA-4	R-1 ITEM NOMENCLATURE 0603216N Aviation Survivability	
<p>(U) Project W0584 develops protective clothing and devices to safeguard aircrew against environmental and physiological threats/hazards during flight and escape. Project W0584 strives to improve the full spectrum of life support equipment ranging from advanced laser eye protection to integrated life support systems to ejection and crashworthiness. In addition to protection, project W0584 enhances situational awareness and target acquisition through the development of helmet mounted displays (HMDs) and smart integrated life support systems. W0584 develops and transitions state-of-the-art life support equipment and protective devices to optimize human/warfighter effectiveness, safety, and survival. Projects 0591, 0592, and 1819 focus on platform survivability, addressing the reductions in aircraft susceptibility to enemy and non-combat threats, as well as aircraft vulnerabilities to conventional, nuclear, chemical, biological, radiological and directed energy weapons. The Aircraft Survivability, Vulnerability and Safety project expands the survivability technology base and develops prototype hardware which is required to improve the survivability of Naval aircraft. Aircraft and Ordnance Safety transitions generic insensitive munitions technology to Navy and Marine Corps air weapons, ensuring that they are insensitive to fast cook-off, slow cook-off, and fragment impact and sympathetic detonation. Carrier Aircraft Fire Suppression Systems develops improved fire fighting systems and fire protective measures for aircraft carriers. Project 9170 (Congressional Add) will shift from traditional cathode ray tube (CRT) based helmet mounted displays to a reflective liquid crystal (RLCD) displays using laser projection. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. As part of the design goals, the ability to add fixed line laser eye protection to the visor assembly will be explored. Project 9173 (Congressional Add) will address the level of protection afforded and feasibility of an external rotorcraft airbag and development of "predictive" crash sensors. Initial impact studies (water and ground) have already been conducted. Joint efforts with the Army for aircrew systems are already underway. Project 9346 reflects a Congressional Add that will fund an equipment life extension laboratory for definition of systems no longer procurable but critical to functionality of weapons systems. Project 9505 (Congressional Add) will support an engineering facility to modify and optimize effective new aviation and information technologies to port the capability over to small maritime craft for special operations. Project 9506 (Congressional Add) will support the feasibility of integrating a Ceramic Oxygen Generator (COGS) into aircraft. Project 9507 (Congressional Add) will support and demonstrate a higher level of Autonomy and Artificial Intelligence for Unmanned Systems to allow them to operate and be accepted in a manned environment. Project 9508 (Congressional Add) develop SWARM, a system consisting of many low cost UAVs (Unmanned Air Vehicles) operating autonomously to achieve a mission with minimum operator intervention. Project 9510 (Congressional Add) will support the assessment of Silver Fox's ability to provide surveillance during mine clearing operations.</p>		

R-1 SHOPPING LIST - Item No. 31

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 2 of 68)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	3.794	4.519	2.834	2.512	2.564	2.618	2.672	2.727
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project 0584 develops, demonstrates, and validates technology options for integrated aircrew emergency and life support systems designed to enhance mission effectiveness, in-flight protection and survivability. The project covers fixed and rotary wing life support equipment, advanced helmet vision systems, escape systems technology, crew centered cockpit design, and cockpit integration programs. It responds to a number of operational requirements documents, including OR# 210-05-88 for Chemical and Biological (CB) Protection, OR#099-05-087 for Laser Eye Protection, and the joint Air Force/Navy (CAF 208-93) for an Aerospace Control Helmet Mounted Cueing System. This project also includes a Congressional plus up for the development of an Air Bag Attenuated Airborne Troop Seat. This efforts goal is to use air bag technology to produce an energy attenuating seating system that is more efficient, more capable, and lighter.</p>								

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 3 of 68)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices																																
B. Accomplishments/Planned Program																																		
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">1.760</td> <td style="text-align: center;">2.079</td> <td style="text-align: center;">1.304</td> <td style="text-align: center;">1.156</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Advanced Integrated Life Support System (AILSS) program. Exercise option to begin the development of frequency Agile flight worthy unity magnification goggles (laser eye protection). Laboratory and field testing of Agile flight worthy goggles prototypes. Focus on alternative materials and optical design to maximize performance. Finalize unity magnification frequency Agile flight worthy goggles and ready for EMD transition. Integrate Smart Advanced Integrated Life Support System (SAILSS) with on-board oxygen and personal air conditioning systems. Integration of SAILSS with focus on imbedded microsensors and personal air conditioning system. Tactical variant of AILSS (TAILSS), move SAILSS into final phases of laboratory testing. Crewstation technology laboratory demonstration of Active Network Guidance Emergency Logic (ANGEL). System integration laboratory demonstration of ANGEL. Combine flight testing of on board/off board data correlation and ANGEL.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">2.034</td> <td style="text-align: center;">2.440</td> <td style="text-align: center;">1.530</td> <td style="text-align: center;">1.356</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>Advanced Technology Crew Station (ATCS) program. System integration and flight testing of Advanced Helmet Vision System enhanced resolution Crusader. I2/Thermal mode control studies. Pilot Vehicle Interface (PVI) on-board/off board data correlation on test aircraft and began flight testing. Advanced Technology Escape System (ATES) ejection seat trajectory and crashworthy seat stroke models with biodynamic models exploring various integrated aircrew head/neck protection configurations for ejection safe helmet mounted systems. Incorporate computational fluid dynamics and parachute models. Preliminary ergonomic seating design, validated BioRID performance and mature final version. Incorporate models of helmet mounted displays into the PVI to support testing and validation of on board/off board data correlation. Horizontal accelerator/vibrating platform assessment of ergonomics, posture, and crashworthiness. Development of Charge Coupled Device (CCD) based, high resolution Advanced Helmet Vision System (follow on to the low resolution Crusader HMD). Integrate results of injury prevention research into protective equipment to include helmet mounted devices and into ejection seat design for improved seal performance, retention, and safety. Development and testing of side facing seat and improved restraint system. Focus on shock and vibration work.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.760	2.079	1.304	1.156	RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.034	2.440	1.530	1.356	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07																														
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RDT&E Articles Quantity																																		

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 4 of 68)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices		

C. PROGRAM CHANGE SUMMARY:

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:	3.827	2.441	2.457	2.482
Current BES/President's Budget	3.794	4.519	2.834	2.512
Total Adjustments	-0.033	2.078	0.377	0.030
Summary of Adjustments				
Congressional undistributed reductions		-0.021		
SBIR/STTR Transfer	-0.029			
OSD		-0.001	0.353	-0.002
Navy Misc. Adjustments	-0.004		0.024	0.032
Congressional increases		2.100		
Subtotal	-0.033	2.078	0.377	0.030

Schedule:

Not Applicable

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
E. ACQUISITION STRATEGY:										
Not Applicable										

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			0584 Aircrew Protective Clothing and Devices						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	Various				1.140	Various	1.187	Various	Continuing	Continuing	
Systems Engineering	WR	NAWCAD Pax River, MD	22.117	3.179	Various	0.884	Various	0.515	Various	Continuing	Continuing	
Systems Engineering	C/CPFF	McDonnell Douglas, St Louis	1.325								1.325	1.325
Systems Engineering	C/CPFF	Boeing, Seattle, WA	1.660								1.660	1.660
Systems Engineering	Various	Various	10.915								10.915	
Licenses	Various	Various				0.180	Various	0.180	Various	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			36.017	3.179		2.204		1.882		Continuing	Continuing	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management	Various	Various	3.232	0.448	Various						3.680	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			3.232	0.448		0.000		0.000		0.000	3.680	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	18.240	0.882	Various	0.200	Various	0.200	Various	Continuing	Continuing	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			18.240	0.882		0.200		0.200		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	WR	NAWCAD Pax River, MD				0.410	Various	0.410	Various	Continuing	Continuing	
Travel	WR	NAWCAD Pax River, MD	0.135	0.010	10/04	0.020	10/05	0.020	10/06	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.135	0.010		0.430		0.430		Continuing	Continuing	
Remarks:												
Total Cost			57.624	4.519		2.834		2.512		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 31

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 8 of 68)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-4												0603216N Aviation Survivability												0584 Aircrew Protective Clothing and Devices											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Program Milestones																																			
Agile Laser Eye Protection																																			
Unity Magnification Goggle																																			
Intensified Unity Mag Goggle																																			
Advance Helmet Vision System (AHVS)																																			
Crusader																																			
Visually Coupled Display (high resolution)																																			
Adanced Integrated Life Support System (AILSS)																																			
Tactical AILSS (TAILSS)																																			
Smart AILSS (SAILSS)																																			
Injury Prevention																																			
T&E Milestones																																			
AHVS laboratory testing																																			
ANGEL																																			
Advanced Technology Crew Station (ATCS)																																			

R-1 SHOPPING LIST - Item No. 31

* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 9 of 68)

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CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No.

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UNCLASSIFIED

Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 10 of 68)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety			
COST (\$ in Millions)	2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.951	6.080	1.572	1.601	1.639	1.671	1.703	1.740
RDT&E Articles Qty	2	23						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Aircraft Survivability, Vulnerability and Safety. This project develops prototype hardware to improve the survivability of Navy and Marine Corps aircraft. This project addresses the likelihood of an aircraft being hit (susceptibility) and the probability of a kill if the aircraft is hit (vulnerability). Types of programs funded under this project include signature reduction efforts, subsystem and component hardening and development of fire and explosion suppression techniques for fuel systems and the Military Flight Operations Quality Assurance (MFOQA).

*RDT& E,N test articles include Military Flight Operations Quality Assurance (**MFOQA**) units.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.100</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.100	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.100	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>Unmanned Aerial Vehicles (UAV) Survivability Enhancement Program (SEP): This program will develop and test survivability enhancements for UAV platforms. Included are Advanced Insulated Exhaust Systems, Situational Awareness Systems, Self-sealing polymers, and acoustic signature reduction.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%;">FY04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.306</td> <td>0.963</td> <td>0.100</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.306	0.963	0.100	0.000	RDT&E Articles Quantity				
	FY04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.306	0.963	0.100	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>Transport/Reconnaissance Survivability Enhancement Program (TR/SEP): This program will develop and test survivability enhancements (i.e., Infrared (IR) engine suppression, new ballistic armor and fire protection) for transport and reconnaissance aircraft to include KC-130J, P-3/MMA, E-6B and others. Fabrication, integration and test will occur in FY05.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety		

B. Accomplishments/Planned Program (Cont.)

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.188	0.087	0.100	0.000
RDT&E Articles Quantity				

Advanced Threats:
 This program assessed the vulnerability of USN/USMC aircraft materials and sensors to low-level laser, high level laser and high power microwave threats (FY 02-FY-04). In FY 04, the advanced 35mm threat will be assessed. In FY06, Remotely Propelled Grenades (RPGs) and other similar threats will be assessed.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.030	0.000	0.030
RDT&E Articles Quantity				

Biannual Update of R&D Master Plan:
 Supports outyear aircraft survivability R&D requirements.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.100	0.150	1.208	1.352
RDT&E Articles Quantity				

Rotorcraft Survivability Enhancement Program:
 This program will develop and test survivability enhancements (i.e., Infrared (IR) engine suppression, new ballistic armor and fire protection) for rotorcraft to include H-1 variants, H-53, H-60 and V-22. FY05 work will determine system requirements and technology suitable for demonstration.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety		

B. Accomplishments/Planned Program (Cont.)

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.100	0.050	0.064	0.069
RDT&E Articles Quantity				

Survivability Analysis Methodology Update:
 This program will update USN/USMC Vulnerability models (Computation of Vulnerable Area and Repair Time (COVART)), Advanced Joint Effectiveness Model (AJEM) to ensure the most up to date analysis tools. This will include updating component probability of kill (PK) data as necessary and will assess conversion methodologies such as Pro/engineer (PRO/E) Computer Aided Design (CAD) model conversion to Facet Generator (FASTGEN) used to show ballistic shot lines.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.157	4.800	0.000	0.000
RDT&E Articles Quantity	2	23		

MFOQA
 Conduct an MFOQA flight demonstration on multiple fleet platforms (F/A-18, H-60, H-53, T-45, V-22, C-40) that includes: Develop requirements for MFOQA parameter selection and standardization. Develop and refine a concept of operations (CONOPS) for MFOQA in the DON. Develop an implementation plan/acquisition strategy for future fleet-wide introduction of MFOQA. RDT&E articles in FY04 were required for data recorders for T-45.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.100	0.150
RDT&E Articles Quantity				

Fixed Wing Survivability Enhancement Program (FW SEP)
 This program will develop and test survivability enhancements (i.e., Infrared (IR) engine suppression, new ballistic armor and fire protection) for fixed wing aircraft to include F/A-18E/F/G and JSF. FY 06/07 work will determine system requirements and technology suitable for demonstration.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget	7.408	6.543	1.558	1.582
Current/BES President's Budget	2.951	6.080	1.572	1.601
Total Adjustments	-4.457	-0.463	0.014	0.019
Summary of Adjustments				
Congressional undistributed reductions		-0.062		
SBIR/STTR Transfer	-0.012			
Navy Misc. Adjustments	-4.445	-0.401	-0.001	-0.001
Economic Assumptions			0.015	0.020
Subtotal	-4.457	-0.463	0.014	0.019

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005																																				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 0591 Aircraft Survivability , Vulnerability and Safety																																					
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. & Name</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2004</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2005</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2006</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2007</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2008</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2009</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2010</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2011</th> <th style="text-align: center; border-bottom: 1px solid black;">To Complete</th> <th style="text-align: center; border-bottom: 1px solid black;">Total Cost</th> </tr> </thead> <tbody> <tr> <td colspan="11" style="padding-top: 10px;">PE 0605132D (Joint Technical Coordinating Group on Aircraft Survivability)</td> </tr> <tr> <td colspan="11" style="padding-top: 5px;">PE 0603384D (Chemical/Biological Defense (Advanced Development))</td> </tr> </tbody> </table> <p>E. ACQUISITION STRATEGY:</p> <p>Military Flight Operations Quality Assurance (MFOQA) utilizes existing aircraft hardware, and a combination of existing Commercial Off The Shelf (COTS) and Government Off The Shelf (GOTS) ground analysis tools. A competitive contract will be awarded to meet the increased aircraft recorder requirements for the demonstration platforms. The program will integrate with existing aircraft systems that are currently post-MS III, utilizing existing contract vehicles to add MFOQA capabilities to demonstrate platform systems.</p>											Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost	PE 0605132D (Joint Technical Coordinating Group on Aircraft Survivability)											PE 0603384D (Chemical/Biological Defense (Advanced Development))										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost																																	
PE 0605132D (Joint Technical Coordinating Group on Aircraft Survivability)																																											
PE 0603384D (Chemical/Biological Defense (Advanced Development))																																											

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			0591 Aircraft Survivability, Vulnerability and Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	INS/LITTON	0.849	0.199	11/04						1.048	1.048
Primary Hardware Development	SS/CPFF	BOEING, ST. LOUIS, MO	0.725	0.633	11/04						1.358	1.358
Primary Hardware Development	SS/CPFF	Lockheed, Marietta, GA	0.322	0.188	11/04	0.798	11/05	0.387	11/06	Continuing	Continuing	
Primary Hardware Development	SS/CPFF	Sikorsky, Connecticut	3.113								3.113	3.113
Primary Hardware Development	SS/CPFF	BAE (UAV)	1.175								1.175	1.175
Systems Engineering	WX	VARIOUS	7.766	0.422	10/04	0.250	11/05	0.250	11/06	Continuing	Continuing	
Primary Hardware Development	WX	VARIOUS	0.673								0.673	
Primary Hardware Development	SS/CPFF	Bell Helicopter	1.307								1.307	
Primary Hardware Development	SS/CPFF	MR&D/COI	0.442								0.442	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			16.372	1.442		1.048		0.637		Continuing	Continuing	
Remarks:												
Development Support, MFOQA	WX	NSWC, Carderock, MD	2.483	2.356	12/04						4.839	
Software Development, MFOQA	TBD	BOEING, ST. LOUIS, MO	1.012	0.978	11/04						1.990	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data	WX	VARIOUS	0.279								0.279	
Studies & Analyses	CPFF	SURVICE Inc.	0.150	0.075	11/04	0.250	11/05	0.185	11/06	Continuing	Continuing	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			3.924	3.409		0.250		0.185		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE, N / BA-4			0603216N Aviation Survivability			0591 Aircraft Survivability, Vulnerability and Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	VARIOUS	1.922	0.556	10/04	0.200	11/05	0.700	11/06	Continuing	Continuing	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation	WX	NAWCWD, CA	0.350								0.350	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			2.272	0.556		0.200		0.700		Continuing	Continuing	
Remarks:												
Contractor Engineering Spt, MFOQA	WX	NAWCAD, Pax River, MD	0.613	0.613	02/05						1.226	
Government Engineering Support											0.000	
Program Management Support	WX	NAWCAD, Pax River, MD	0.120	0.050	10/04	0.064	11/05	0.069	11/06	Continuing	Continuing	
Travel	WX	NAWCAD, Pax River, MD	0.225	0.010	10/04	0.010	11/05	0.010	11/06	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.958	0.673		0.074		0.079		Continuing	Continuing	
Remarks:												
Total Cost			23.526	6.080		1.572		1.601		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

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EXHIBIT R4, Schedule Profile																								DATE: FEBRUARY 2005								
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA-4										0603216N Aviation Survivability										0591 Aircraft Survivability, Vulnerability and Safety												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Program Milestones																																
Advanced Fire Protection																																
System Design Review																																
Ballistic Tests																																
Test Report																																
UAV/SEP																																
Ground/Flight Tests																																
Integration Report																																
TR/SEP																																
System Design Review																																
Test Plan Review																																
Ground/Flight Tests																																
Integration Report																																
Advanced Threats																																
High Power Laser Report																																
35mm Component Test Report																																
Survivability Master Plan Update Reports																																
Survivability Analysis Methodology																																
Platform Vulnerability Report																																
Component Probability of Kill (PK) Report																																
Rotocraft SEP																																
Tech Demo Downselect																																
System Design Review																																
Test Plan Review																																
Ground/Flight Tests																																
Integration Report																																
Fixed Wing SEP																																
Tech Demo Downselect																																
System Design Review																																
Test Plan Review																																
Ground/Flight Tests																																
Unmanned Combat Aerial Vehicle (UCAV) SEP Tech Demo																																
Tech Demo Downselect																																
System Design Review																																
Test Plan Review																																
Ground/Flight Tests																																

R-1 SHOPPING LIST - Item No. 3331

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
APPROPRIATION/BUDGET ACTIVITY						FEBRUARY 2005		
RDT&E, N / BA-4						0591 Aircraft Survivability, Vulnerability and Safety		
Schedule Profile	2004	2005	2006	2007	2008	2009	2010	2011
Advanced Fire Protection System Design Review								
Advanced Fire Protection Ballistic Tests	1Q-2Q							
Advanced Fire Protection Test Report	2Q							
UAV/SEP Ground/Flight Tests	1Q-2Q							
UAV/SEP Integration Report	1Q-2Q							
TR/SEP System Design Review	1Q							
TR/SEP Test Plan Review	3Q							
TR/SEP Ground/Flight Tests		1Q						
TR/SEP Integration Report		4Q						
Advanced Threats High Power Laser Report	3Q							
Advanced Threats 35mm Component Test Report		4Q						
Survivability Master Plan Update Reports		4Q		4Q		4Q		
Survivability AnalysisMethodology Update-Platform Vulner	4Q							
Survivability AnalysisMethodology Update-Component								
probability of Kill (PK) Report		4Q						
Rotorcraft SEP Tech Demo Downselect		1Q						
Rotorcraft SEP System Design Review			1Q					
Rotorcraft SEP Test Plan Review			3Q					
Rotorcraft SEP Ground/Flight Tests				1Q				
Rotorcraft SEP Integration Report				4Q				
Fixed Wing SEP Tech Demo Downselect			1Q					
Fixed Wing SEP System Design Review					1Q			
Fixed Wing SEP Test Plan Review					3Q			
Fixed Wing SEP Ground/Flight Tests						1Q		
Unmanned Combat Aerial Vehicle (UCAV) SEP Tech								
Demo Downselect					1Q			
UCAV SEP System Design Review							1Q	
UCAV SEP Test Plan Review							3Q	
UCAV Ground/Flight Tests								1Q

R-1 SHOPPING LIST - Item No. 31

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 20 of 68)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: FEBRUARY 2005								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4									MFOQA PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability												PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
MFOQA Parameter Selection																																
MFOQA Version 1 Release																																
MFOQA Version 2 Release																																
Report																																
Systems Integration																																
Flight Demos																																
CONOPS/Fleet Implementation Plan																																
Production Milestones																																
Deliveries																																

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R-1 SHOPPING LIST - Item No. 31

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 22 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability			PROJECT NUMBER AND NAME 0592, Aircrfat & Ordnance Safety			
COST (\$ in Millions)	FY2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	1.345	1.237	1.278	1.536	1.568	1.601	1.633	1.667
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Aircraft and Ordnance Safety Program transitions transformational munitions technology to Navy and Marine Corps air weapons, to comply with the Chief of Naval Operations direction that all munitions carried aboard Navy ships be insensitive to unplanned stimuli (thermal, impact, and shock events). The Aircraft and Ordnance Safety Program also ensures the safety and protection of personnel, aircraft, ships, and operational facilities, through improved precision targeting, fail-safe ordnance, selective effects munitions and shock/blast force protection technologies.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability	PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.130</td><td style="text-align: center;">0.216</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.130	0.216	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.130	0.216															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">REACTIVE MATERIALS: Continue evaluating reactive material warheads for Insensitive Munitions (IM) compliance. Output: IM characterization of warheads with reactive material components.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.248</td><td style="text-align: center;">0.100</td><td style="text-align: center;">0.112</td><td style="text-align: center;">0.135</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.248	0.100	0.112	0.135	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.248	0.100	0.112	0.135															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">SYMPATHETIC DETONATION PROTECTION: Demonstrate pumice as a sympathetic detonation (SD) barrier for weapon shipping containers. Refine pumice design capability for SD mitigation. Output: New modeling capabilities and demonstrated technology to reduce the threat of SD in Joint Stand-Off Weapon (JSOW) and General Purpose (GP) bomb Munitions.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.210</td><td style="text-align: center;">0.156</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.210	0.156	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.210	0.156															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">IMPROVED NAVY IM BOMB: Analysis/Design/Demonstration of an improved IM Navy Bomb that will mitigate SD and Cook-off threats Output: qualification of an IM compliant Navy Bomb</div>																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability	PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety																	
B. Accomplishments/Planned Program (Cont.)																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.378</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.378	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.378	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>COMPOSITE CASE IM DEMONSTRATION: Conduct composite case Insensitive Munitions (IM) testing demonstration. Begin long range air to surface composite case IM demonstration.</p> <p>Output: Flight demo of composite case weapon airframe for air to air/ground missile.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.277</td> <td>0.404</td> <td>0.205</td> <td>0.136</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.277	0.404	0.205	0.136	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.277	0.404	0.205	0.136															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>AIR TO AIR MISSILE PROPULSION SYSTEM DEMO/TESTING: Conduct improved air to air missile demonstration and testing.</p> <p>Output: baseline IM performance of air breathing systems.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.265</td> <td>0.362</td> <td>0.215</td> <td>0.356</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.265	0.362	0.215	0.356	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.265	0.362	0.215	0.356															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>SHOCK/BLAST BARRIER PROTECTION DEMO/TESTING: Conduct shock/blast protection demonstration and testing.</p> <p>Output: Design and demonstration of shock absorbent materials for the protection of weapons and weapon platforms.</p> </div>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability	PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.177	0.371	0.406	0.537
RDT&E Articles Quantity				
<div style="border: 1px solid black; padding: 5px;">IMPROVED AIR LAUNCHED WEAPONS: Demonstrate improved air launched munitions for force protection and homeland defense. Output: Demonstrate/determine the IM and safety characteristics of improved air launched munitions.</div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000
RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 26 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603216N, Aviation Survivability	0592, Aircraft & Ordnance Safety		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget	1.346	1.248	1.266	1.517
Current BES/President's Budget	1.345	1.237	1.278	1.536
Total Adjustments	-0.001	-0.011	0.012	0.019
Summary of Adjustments				
Congressional undistributed reductions		-0.011		
Navy Misc. Adjustments			-0.001	-0.001
Economic Assumptions			0.013	0.020
Subtotal	0.000	-0.011	0.012	0.019
Schedule: Not Applicable				
Technical: Not Applicable				

R-1 SHOPPING LIST - Item No. 31

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 27 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability			PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
0604802A, Department of Army 0603609N, Conventional Munitions										

E. ACQUISITION STRATEGY:

The Aircraft and Ordnance Safety Project acquisition strategy consists of actions (technology transition) which are intended to assist the improvement of NAVAIR-cognizant munitions. Specific task planning involves close coordination with the program offices, field activities, and the IM and IMAD offices. Primary considerations in planning address windows of opportunity within the overall system procurement/life cycle, including milestone II (E&MD), P3I, and PIP events. Munition system design elements involving IM response risk (existing or anticipated) are analyzed in relation to proven and available IM technologies applicable to improvements in those design elements. When it is established that a system can probably be improved by implementing new technology and a window of opportunity for transition is available, the greatest overall improvement in fleet safety regarding IM response risk is the final deciding factor used to prioritize task selection for funding from limited resources.

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603216N, Aviation Survivability			PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WX	NAWCWD CHINA LAKE, CA	19.195	1.205	10/04	1.248	11/05	1.506	11/06	Continuing	Continuing	
Systems Engineering											0.000	
Training Development											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			19.195	1.205		1.248		1.506		Continuing	Continuing	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0603216N, Aviation Survivability			PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.052								0.052	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.052	0.000		0.000		0.000		0.000	0.052	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel	WX	NAWCWD CHINA LAKE, CA	0.180	0.032	10/04	0.030	11/05	0.030	11/06	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.180	0.032		0.030		0.030		Continuing	Continuing	
Remarks:												
Total Cost			19.427	1.237		1.278		1.536		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 31

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 30 of 68)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:															
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												FEBRUARY 2005			
RDT&E, N / BA-4												0603216N, Aviation Survivability												0592, Aircrfat & Ordnance Safety															
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011										
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4											
Reactive Materials																																							
Sympathetic Detonation Protection																																							
Composite Case IM Demonstration																																							
Air to Air Missile Propulsion System																																							
Shock/Blast Barrier Protection																																							
Improved Air Launched Weapon																																							
Improved Navy IM Bomb																																							

R-1 SHOPPING LIST - Item No. 31

* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 31 of 68)

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CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 31

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 32 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 1819 Carrier Vehicle Aircraft Fire Suppression System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY2010	FY2011
Project Cost	0.739	0.583	0.571	0.706	0.721	0.737	0.751	0.768
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops improved fire fighting systems and fire protective measures for aircraft related fires on aircraft carriers, including assessment of fire properties, definition of fire threats, improvements to fire fighting agents and delivery systems, fire detection and suppression system performance evaluations, and fire fighter training improvements.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 1819 Carrier Vehicle Fire Suppression System																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.090</td><td style="text-align: center;">0.020</td><td style="text-align: center;">0.050</td><td style="text-align: center;">0.086</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	0.090	0.020	0.050	0.086	RDT&E Articles Quantity				
	FY 04	FY 05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	0.090	0.020	0.050	0.086															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 100px;">Fire Fighting Agents: Evaluate new or modified agents which adequately address changing agent restrictions or technical needs. Objective is to ensure that periodic, but unpredictable, restrictions on agent production or use, primarily driven by the environmental and toxicological fields, do not negatively impact fleet safety.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.281</td><td style="text-align: center;">0.334</td><td style="text-align: center;">0.233</td><td style="text-align: center;">0.268</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	0.281	0.334	0.233	0.268	RDT&E Articles Quantity				
	FY 04	FY 05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	0.281	0.334	0.233	0.268															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 100px;">Fire Fighting Systems: Evaluate system automation features and demonstrate enhancements to personnel protection equipment. Objective is to evaluate system hardware for effectiveness against updated fire threats.</div>																			
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 100px;">Fire Fighting Tactics: Evaluate reduced manning impact and resultant modifications to tactics. Provide opportunities for training during agent/system testing. Objective is to maintain emergency capabilities as reductions in manpower draw from available response crews.</div>																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																																																								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 1819 Carrier Vehicle Aircraft Fire Suppression System																																																									
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 10%;">FY 2004</th> <th style="text-align: right; width: 10%;">FY 2005</th> <th style="text-align: right; width: 10%;">FY2006</th> <th style="text-align: right; width: 10%;">FY2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget:</td> <td style="text-align: right;">0.740</td> <td style="text-align: right;">0.588</td> <td style="text-align: right;">0.597</td> <td style="text-align: right;">0.734</td> </tr> <tr> <td>Current BES/President's Budget</td> <td style="text-align: right;">0.739</td> <td style="text-align: right;">0.583</td> <td style="text-align: right;">0.571</td> <td style="text-align: right;">0.706</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.001</td> <td style="text-align: right; border-top: 1px solid black;">-0.005</td> <td style="text-align: right; border-top: 1px solid black;">-0.026</td> <td style="text-align: right; border-top: 1px solid black;">-0.028</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Congressional undistributed reductions</td> <td></td> <td style="text-align: right;">-0.005</td> <td></td> <td></td> </tr> <tr> <td> Navy Misc. Adjustments</td> <td></td> <td></td> <td style="text-align: right;">-0.030</td> <td style="text-align: right;">-0.037</td> </tr> <tr> <td> Economic Assumptions</td> <td></td> <td></td> <td style="text-align: right;">0.004</td> <td style="text-align: right;">0.009</td> </tr> <tr> <td> Reprogrammings</td> <td style="text-align: right;">-0.001</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-0.001</td> <td style="text-align: right; border-top: 1px solid black;">-0.005</td> <td style="text-align: right; border-top: 1px solid black;">-0.026</td> <td style="text-align: right; border-top: 1px solid black;">-0.028</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 20px;">Not applicable</p> <p style="margin-top: 40px;">Technical:</p> <p style="margin-left: 20px;">Not applicable</p>						FY 2004	FY 2005	FY2006	FY2007	Funding:					Previous President's Budget:	0.740	0.588	0.597	0.734	Current BES/President's Budget	0.739	0.583	0.571	0.706	Total Adjustments	-0.001	-0.005	-0.026	-0.028	Summary of Adjustments					Congressional undistributed reductions		-0.005			Navy Misc. Adjustments			-0.030	-0.037	Economic Assumptions			0.004	0.009	Reprogrammings	-0.001				Subtotal	-0.001	-0.005	-0.026	-0.028
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R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 1819 Carrier Vehicle Aircraft Fire Suppression System					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY2011</u>	<u>To Complete</u>	<u>Total Cost</u>
Not applicable										
E. ACQUISITION STRATEGY:										
Not applicable										

R-1 SHOPPING LIST - Item No 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9170 Modular Advanced Vision System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.330	4.160						
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>This funding will support the shift from traditional CRT based helmet mounted displays to a reflective liquid crystal display using laser projection. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. The AHVS is composed of two modules. The outer helmet module is a binocular, multi-spectral (day, night, NVG, FLIR) visor projected display . Communications equipment, improved hearing protection, and oxygen mask are mounted to the inner module, which is custom fitted to each aircrew. The inner module (helmet) provides a stable platform upon which mission specific outer modules are attached. Their concept reduces future development cost - designers would begin work from a stable, defined inner helmet platform with common attachment points. Separate helmet development would not be required for any future designs.</p>								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9170 Modular Advanced Vision System																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: right;">2.330</td><td style="text-align: right;">4.160</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.330	4.160			RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	2.330	4.160																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 100px;"><u>Modular Advanced Vision System</u> The initial design of the laser projected reflective LCD has been completed. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. Currently the laser source and associated relay optics are being fine tuned to improve manufacturability. Fit studies are assessing portion of the population accommodated by inner module and improving level of sound attenuation provided by hearing protection.</div>																			
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Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 38 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9170 Modular Advanced Vision System		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 04	FY 05	FY 06	FY 07
Previous President's Budget:	2.374	0.000		
Current BES/President's Budget	2.330	4.160		
Total Adjustments	-0.044	4.160	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.039		
Navy Misc. Adjustments	0.042	-0.001		
Economic Assumptions	0.002			
Congressional increases		4.200		
Subtotal	0.044	4.160	0.000	0.000

Schedule:

Not Applicable

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9170 Modular Advanced Vision System			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										

E. ACQUISITION STRATEGY:

Not Applicable

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9173 Rotocraft External Airbag			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	3.390	3.764						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will address the level of protection afforded and feasibility of a rotorcraft external airbag, and then to bring the capability to a production ready, aircraft fieldable status. While automotive airbag technology is relatively mature, this unique application will require much larger airbags, aircraft structural integration approach for mounting the airbags in a maintainable manner, and the development of a "predictive" crash sensor. Initial impact studies (water and ground) have already been conducted. Joint efforts with the Army for aircrew systems are already underway.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9173 Rotocraft External Airbag																																
B. Accomplishments/Planned Program																																		
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	FY 04	FY 05	FY 06	FY 07																														
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RDT&E Articles Quantity																																		

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 42 of 68)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9173 Rotocraft External Airbag		

C. PROGRAM CHANGE SUMMARY:

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:	3.461			
Current BES/President's Budget	3.390	3.764		
Total Adjustments	-0.071	3.764	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.035		
SBIR/STTR Transfer	-0.068			
Navy Misc. Adjustments		-0.001		
Economic Assumptions	-0.003			
Congressional increases		3.800		
Subtotal	-0.071	3.764	0.000	0.000

Schedule:

Not Applicable

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9173 Rotocraft External Airbag					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
E. ACQUISITION STRATEGY:										
Not Applicable										

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 9346 Equipment Life Extension Program			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.443	1.485						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will fund an equipment life extension laboratory for definition of systems no longer procurable that are critical to functionality of weapon systems. By equipping currently existing in house laboratories to maintain, modify, and update existing, non supported systems a significant cost reduction will be realized. The alternative of modifying and updating aircraft and weapons systems to accept new technologies is cost prohibitive.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 45 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9346 Equipment Life Extension Program																	
B. Accomplishments/Planned Program																			
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">Equipment Life Extension Program This effort will fund an equipment life extension laboratory for definition of systems no longer procurable that are critical to functionality of weapon systems. By equipping currently existing in house laboratories to maintain, modify, and update existing, non supported systems a significant cost reduction will be realized.</div>																			
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Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			
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RDT&E Articles Quantity																			
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R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9346 Equipment Life Extension Program		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY2005	FY2006	FY2007
Funding:				
Previous President's Budget:	2.472			
Current BES/President's Budget	2.443	1.485		
Total Adjustments	-0.029	1.485	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.015		
SBIR/STTR Transfer	-0.027			
Economic Assumptions	-0.002			
Congressional Increases		1.500		
Subtotal	-0.029	-0.015	0.000	0.000

Schedule:

Not Applicable

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability		PROJECT NUMBER AND NAME 9346 Equipment Life Extension Program			

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>
PE 0602201F (Aerospace Flight Dynamics)									
PE 0602233N (Mission Support Equipment)									
PE 0604264N (Aircrew Systems Development)									
PE 0604706F (Life Support Systems)									
PE 06023231F (Crew Systems and Personal Protection Technology)									

E. ACQUISITION STRATEGY:

Not Applicable

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 9505 Advanced Maritime Technology Center			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		1.882						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will establish a technology center to rapidly transition capabilities developed for air to sea environment. In particular, advanced display concepts, helmets, crashworthiness, energy absorbing systems, as well as basic injury component models are directly applicable and needed for fast attack boats and other surface application. Although developed for aircraft the technologies are directly applicable to the harsh surface environment. The resultant capability will establish a capability to rapidly modify and transition critical products.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9505 Advanced Maritime Technology Center																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		1.882																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px;"><p><u>Advanced Maritime Technology Center</u></p><p>The Advanced Maritime Technology Center will be an engineering facility to modify / optimize effective new aviation and information technologies to port the capability over to small maritime craft for special operations. The key feature in designing small watercraft are mission / crew-centered innovations embodying technology drawn from advances in the areas of display design, crashworthiness, advanced restraint systems, helmet mounted displays , and supporting head / neck injury research,</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 50 of 68)

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9505 Advanced Maritime Technology Center		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 04	FY 05	FY 06	FY 07
Previous President's Budget:		0.000		
Current BES/President's Budget		1.882		
Total Adjustments	0.000	1.882	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.018		
Congressional increases		1.900		
Subtotal	0.000	1.882	0.000	0.000
Schedule:				
Not Applicable				
Technical:				
Not Applicable.				

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9505 Advanced Maritime Technology Center					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
E. ACQUISITION STRATEGY:										
Not Applicable										

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9506 Integrated Manifold & Tube Ceramic Oxygen Generator			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		4.160						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will begin research that will primarily be devoted to advancing the oxygen generating technology using ceramic membranes. To integrate Ceramic Oxygen Generators (COGS) into an aircraft work will be required to conserve oxygen using pulse dosing breathing regulators, monitoring aircrew via user acceptable sensors and biofeedback technology, and improving real-time oxygen sensing capability.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9506 Integrated Manifold & Tube Ceramic Oxygen Generator																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		4.160																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p><u>Integrated Manifold and Tube Ceramic Oxygen Generator</u></p><p>This effort will complete a currently unfunded effort to build and flight test a molecular sieve based oxygen concentrator with built in diagnostics and dilution control via external input. The research will focus on advancing the oxygen generating technology using ceramic membranes. To integrate COGS into an aircraft will require a method to conserve oxygen using pulse dosing breathing regulators, monitoring aircrew via user acceptable sensors and biofeedback technology, and improving real-time oxygen sensing capability. An alternative advanced Oxygen Generating Technology will also be pursued to improve fleet oxygen systems as ceramic technology matures. This effort will complete a currently unfunded effort to build and flight test a molecular sieve based oxygen concentrator that has built in diagnostics and dilution control via external input</p></div>																			
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Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 54 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9506 Integrated Manifold & Tube Ceramic Oxygen Generator		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 04	FY 05	FY 06	FY 07
Previous President's Budget:				
Current BES/President's Budget		4.160		
Total Adjustments	0.000	4.160	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.039		
Navy Misc. Adjustments		-0.001		
Congressional increases		4.200		
Subtotal	0.000	4.160	0.000	0.000
Schedule:				
Not Applicable				
Technical:				
Not Applicable.				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9506 Integrated Manifold & Tube Ceramic Oxygen Generator					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
E. ACQUISITION STRATEGY:										
Not Applicable										

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9507 Intelligent Autonomy Technology Transition			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		2.476						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will focus on transitioning advancements and COTS technology into Unmanned Systems. The capability will greatly expand DoD's tactical options while safeguarding the warfighter. Physical limits on bandwidth and network connectivity require future devices to have high levels of organic autonomy to support the envisioned scenarios. Core technologies include sensing, data fusion, situational awareness, and intelligent autonomous operations, replanning, systems management and group cooperation. The funding will be used to demonstrate a higher level of Autonomy and Artificial Intelligence for Unmanned Systems to allow them to operate and be accepted in a manned environment. A high level of autonomy is required to achieve manpower reduction goals, data-link bandwidth limitations, and covert operations. The challenge is integrating new technology into existing military unmanned craft and finding a Research and Development/Test and Integration Center to host developmental testing. Autonomous systems are non-deterministic which are very difficult to test/certify. The current effort attempts to break this cycle of cost increases for unmanned systems by developing control algorithms and low cost high bandwidth data links to connect the UAVs to the control systems.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9507 Intelligent Autonomy Technology Transition																	
B. Accomplishments/Planned Program																			
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Accomplishments/Effort/Subtotal Cost		2.476																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p><u>Intelligent Autonomy Technology Transition</u></p><p>A high level of autonomy is required to achieve manpower reduction goals, data-link bandwidth limitations, and covert operations. The challenge is integrating new technology into existing military unmanned craft and finding a Research and Development/Test and Integration Center to host developmental testing. Autonomous systems are non-deterministic which are very difficult to test/certify. The current effort attempts to break this cycle of cost increases for unmanned systems by developing control algorithms and low cost high bandwidth data links to connect to UAV's to the control system.</p></div>																			
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RDT&E Articles Quantity																			

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 58 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9507 Intelligent Autonomy Technology Transition		

C. PROGRAM CHANGE SUMMARY:

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:				
Current BES/President's Budget		2.476		
Total Adjustments	0.000	2.476	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.023		
Navy Misc. Adjustments		-0.001		
Congressional increases		2.500		
Subtotal	0.000	2.476	0.000	0.000
Schedule:				
Not Applicable				
Technical:				
Not Applicable.				

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N / BA-4		0603216N Aviation Survivability			9507 Intelligent Autonomy Technology Transition					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
E. ACQUISITION STRATEGY:										
Not Applicable										

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9508 Intelligent Control System for SWARM			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		3.764						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program will develop an intelligent control system for the next generation of UAVs, with particular applicability for the SWARM UAV concept. The developed technology would have the capability for coordinated control of multiple UAVs and have processing capabilities required for responding to threat assessment for chemical, biological and nuclear detection sensors. Technology transfers to industry will be included in the program to establish an industrial base to support Defense applications.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9508 Intelligent Control System for SWARM																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		3.764																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px;"><p><u>Intelligent Control System for SWARM</u></p><p>The ultimate goal is to develop an intelligent control system that will demonstrate autonomous operations and cooperative behavior for persistent surveillance. The objective is to identify, acquire, and integrate, available technologies to develop prototype SWARM UAVs for test and evaluation. Specific tasks include: 1) identifying available components such as airframes, avionics controls, communication software, and sensors suitable for SWARM applications, 2) evaluating existing technologies and determining required enhancements, 3) algorithm and software development to control several vehicles in the air simultaneously, 4) cooperative behavior such that the vehicles positions are simultaneously tracked on the mission plan map.</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9508 Intelligent Control System for SWARM		

C. PROGRAM CHANGE SUMMARY:

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:				
Current BES/President's Budget		3.764		
Total Adjustments	0.000	3.764	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.035		
Navy Misc. Adjustments		-0.001		
Congressional increases		3.800		
Subtotal	0.000	3.764	0.000	0.000
Schedule:				
Not Applicable				
Technical:				
Not Applicable.				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N / BA-4		0603216N Aviation Survivability			9508 Intelligent Control System for SWARM					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
E. ACQUISITION STRATEGY:										
Not Applicable										

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EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9510 Silver Fox UAV			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		4.952						
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>This effort will further accelerate the development of small, low-cost, unmanned air vehicles for Navy ship operations, marine mammal detection, submarine detection, tactical support for ground troops and special operations forces - including convoy protection perimeter defense. This effort will continue airframe, engine, and sensor development, as well as the integration of the Autonomous Intelligent Network of Systems (AINS) program to support autonomous intelligent networks of UAVs.</p>								

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 65 of 68)

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9510 Silver Fox UAV																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		4.952																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 100px;"><p><u>Silver Fox UAV</u></p><p>Support the assessment of Silver Fox's ability to provide surveillance during mine clearing operations. In particular, search and scan patterns will be assessed and optimized. Key areas of study include determining resolution and field of view of the sensor as function of altitude and mission profile.</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
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<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 10%;">FY 04</th> <th style="text-align: right; width: 10%;">FY 05</th> <th style="text-align: right; width: 10%;">FY 06</th> <th style="text-align: right; width: 10%;">FY 07</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget:</td> <td></td> <td style="text-align: right;">4.952</td> <td></td> <td></td> </tr> <tr> <td>Current BES/President's Budget</td> <td></td> <td style="text-align: right;">4.952</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">4.952</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Congressional program reductions</td> <td></td> <td style="text-align: right;">-0.047</td> <td></td> <td></td> </tr> <tr> <td> Congressional undistributed reductions</td> <td></td> <td style="text-align: right;">-0.047</td> <td></td> <td></td> </tr> <tr> <td> Congressional rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR/STTR Transfer</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> OSD</td> <td></td> <td style="text-align: right;">-0.001</td> <td></td> <td></td> </tr> <tr> <td> Navy Misc. Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Economic Assumptions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Reprogrammings</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional increases</td> <td></td> <td style="text-align: right;">5.000</td> <td></td> <td></td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">4.952</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 20px;">Not Applicable</p> <p style="margin-top: 20px;">Technical:</p> <p style="margin-left: 20px;">Not Applicable.</p>						FY 04	FY 05	FY 06	FY 07	Funding:					Previous President's Budget:		4.952			Current BES/President's Budget		4.952	0.000	0.000	Total Adjustments	0.000	4.952	0.000	0.000	Summary of Adjustments					Congressional program reductions		-0.047			Congressional undistributed reductions		-0.047			Congressional rescissions					SBIR/STTR Transfer					OSD		-0.001			Navy Misc. Adjustments					Economic Assumptions					Reprogrammings					Congressional increases		5.000			Subtotal	0.000	4.952	0.000	0.000
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Exhibit R-2a, RDTE Project Justification
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EXHIBIT R-2a, RDT&E Project Justification						DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9510 Silver Fox UAV					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
E. ACQUISITION STRATEGY:										
Not Applicable										

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EXHIBIT R-2, RDT&E Budget Item Justification						DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA4				R-1 ITEM NOMENCLATURE 0603237N Deployable Joint Command & Control (DJC2)				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	63.475	41.984	41.464	7.895	8.016	8.139	8.332	8.501
3050 Deployable Joint Command & Control	63.475	41.984	41.464	7.895	8.016	8.139	8.332	8.501
Quantity of RDT&E Articles	1							
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Deployable Joint Command and Control (DJC2) is a SecDef and Chairman, Joint Chiefs of Staff (CJCS) priority DoD transformation initiative that provides a deployable, scalable and tailorable headquarters command and control (C2) capability for each Regional Combatant Commander (RCC), and one maritime variant. It is the materiel solution to Standing Joint Force Headquarters (SJFHQ), a new capability to be implemented at each RCC starting in FY05. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. The DJC2 program addresses both the Quadrennial Defense Review (QDR) finding that a joint command and control architecture needs to be developed for standing JTFs at each of the RCCs and the need for a deployable Joint Command and Control System described in the Transformation Study Report presented to the Secretary of Defense in April 2001. It integrates lessons learned from U.S. Central Command's deployable headquarters funded from the FY 2001 Emergency Supplemental Act for Recovery from and Response to Terrorist Attacks on the United States. The JCS/Joint Requirement Oversight Council (JROC) has approved the DJC2 Mission Needs Statement (MNS) and Operational Requirements Document (ORD).</p> <p>DJC2 seeks to provide standing, and standardized, joint C2 systems that can be deployed by RCCs or JTFs and the new SJFHQ concept and doctrine being developed by Joint Forces Command in coordination with other RCCs and the Joint Staff, as tasked by DPG. RCC and JTF commanders will use a deployable joint command and control capability for day-to-day operations, as well as when deployed for training or contingency operations. The capability is intended for all levels of conflict and will be reconfigurable to meet specific RCC and JTF mission requirements. This capability must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.</p> <p>DJC2 will utilize Global Command and Control System (GCCS) in its core suite of applications, ensuring interoperability with the worldwide-installed base of GCCS-J.</p>								

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 1 of 10)

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA4	R-1 ITEM NOMENCLATURE 0603237N Deployable Joint Command & Control (DJC2)	
<p>The RDT&E line supports an evolutionary acquisition strategy. The intent of this strategy is to develop a system based upon a current understanding of joint requirements, rapidly field systems based upon those requirements, analyze operational utilization of the systems, and roll the results of the analysis into periodic upgrades of the systems to maintain currency and maximize operational effectiveness. Maximum use will be made of commercial technologies; technology insertion of each DJC2 suite will be made approximately every three years. The baseline Increment I configuration will be based upon existing S&T initiatives, Advanced Concepts Technology Demonstration (ACTD) Programs, programs of record, and fielded capabilities of the services and defense agencies, scaled to the RCC level. The Increment II and subsequent deliveries will include newly developed capabilities based on emergent, joint requirements and operational feedback from utilization of earlier delivered systems, as well as incorporation of new commercial technologies.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it develops and integrates hardware and software for experimental tests related to specific applications.</p>		

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4	PROGRAM ELEMENT NUMBER AND NAME 0603237N Deployable Joint Command & Control	PROJECT NUMBER AND NAME 3050 DJC2		
(U) B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	19.609	18.192	21.000	0.000
RDT&E Articles Quantity				
<p>FY04 - Performed System Engineering and Integration (SE&I) activities associated with DJC2 deliveries to JFCOM and the four RCCs. Conducted engineering and design tradeoffs to validate the concept of operations and ensure ORD compliance. Conducted requirements traceability analysis to ensure operational requirements identified in the MNS and ORD are adequately captured in specifications. Began integrating legacy systems (information technology and infrastructure) for DJC2 deliveries, including the core software applications, deployability systems, and transportability and mobility components. Developed evaluation and test plans, and perform initial testing for the JFCOM delivery. Refined configuration management baselines and the Technology Development Plan. Utilized analysis, architectural design, and design review processes to perform detailed design implementation. Utilized results of capability improvement process to determine which applications will be transitioned to DJC2, and integrated them into the baseline.</p> <p>FY05 - FY06: Continue to perform SE&I activities associated with the follow-on increment requirements update and design process. Refine configuration management baselines and Technology Development Plan. Utilized analysis, architectural design, and design review processes to perform detailed design for technologies identified as part of the technology insertion process for Increment I. Begin assessment and detailed planning for follow-on increment and methodology necessary to implement that design into the engineering test bed, as well as the JFCOM, PACOM, and CENTCOM systems. Refine Architecture views necessary to support follow-on Increment Information Support Plan, Cost Documentation, Testing, and Capabilities Production Document. Perform necessary requirements decomposition using Rational Unified Process, driving toward a production level specification. Begin testing and integrating service based architecture, refining knowledge management procedures necessary for incorporation into the GIG-ES. Evaluate and begin transition of hardware toward Internet Protocol 6.0. Identify solution for Multi-Level Security and when chosen, evaluate impact on IT server size and deployability. Determine impact on bandwidth and refinement of data reachback procedures to specified Centers of Excellence, optimizing only handling information once (OHIO). Conduct necessary design reviews to validate proposed design.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	10.000	7.590	4.396	3.595
RDT&E Articles Quantity				
<p>FY04 - Utilized the initial test facility to support extended development of commercial technologies to develop deployable C2 centers for each of the four RCCs and one maritime platform. Utilized this initial test facility to further refine the requirements for the DJC2 material solution based upon experimentation and ACTD results. Developed and implemented changes in the DJC2 RDT&E test bed based on lessons learned in ACTDs and operations/exercises. Utilized the test bed in realistic military demonstrations, and on that basis, made assessments of the military utility.</p> <p>FY05-07 - Continue to utilize the initial test facility to support extended development of commercial technologies to develop deployable C2 centers for each of the four RCCs and one maritime platform. Utilize this initial test facility to further refine the requirements for the DJC2 materiel solution based upon experimentation and ACTD results. Develop and implement changes in the DJC2 RDT&E test bed based on lessons learned in ACTDs and operations/exercises. Utilize the test bed in realistic military demonstrations, and on that basis, make assessments of the military utility.</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4	PROGRAM ELEMENT NUMBER AND NAME 0603237N Deployable Joint Command & Control	PROJECT NUMBER AND NAME 3050 DJC2																	
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Accomplishments/Effort/Subtotal Cost	2.986	3.483	3.900	4.300															
RDT&E Articles Quantity																			
<p>FY04- Utilized initial systems engineering analysis to establish systems concepts and compliance with MAIS and Clinger-Cohen Act requirements. Oversaw development of the test bed facility and SE&I work to develop the initial core applications for the DJC2 baseline. Analyzed, prepared, and performed Milestone B, In-Process Review (IPR), and Milestone C activities for Increment I.</p> <p>FY05-07 Analyze, prepare, and perform Milestone B, In-Process Review (IPR), and Milestone C activities for Increment II and beyond.</p>																			
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Accomplishments/Effort/Subtotal Cost	14.000	12.719	10.189	0.000															
RDT&E Articles Quantity																			
<p>FY04- Evaluated validated technical concepts and technologies to be prototyped in advanced technology transitions to address deployable C2 requirements, and selected technologies for integration into DJC2 increments. Evaluation/selection emphasized technology assessment and integration/incorporation of existing commercial technologies to provide a prototype capability to the warfighter and to support capability evaluations. Conducted technology market surveys of selected components to support overall product selection.</p> <p>FY05-06 - Select commercial technology which enhances warfighter capability will be obtained, tested and when deemed appropriate, placed on the roadmap for insertion. Mature technology will be recommended for inclusion into the follow-on increments. Continue to validate technical concepts and technologies.</p>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	16.880	0.000	1.979	0.000															
RDT&E Articles Quantity	1																		
<p>FY04 - Designed, developed, integrated, tested, and implemented DJC2 CONOPS experimentation system at JFCOM. The CONOPS experimentation system consist of the baseline configuration and prototype systems and capabilities developed for the follow-on SJFHQ concept demonstrations, and is used in the refinement of operational requirements and processes.</p> <p>FY06 - Provide technology refresh and component upgrade for the CONOPS Experimentation System at JFCOM</p>																			

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 4 of 10)

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																																																								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4	PROGRAM ELEMENT NUMBER AND NAME 0603237N Deployable Joint Command & Control	PROJECT NUMBER AND NAME 3050 DJC2																																																									
<p>(U) C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: right;">FY 2004</th> <th style="width: 10%; text-align: right;">FY 2005</th> <th style="width: 10%; text-align: right;">FY 2006</th> <th style="width: 10%; text-align: right;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>(U) Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">63.541</td> <td style="text-align: right;">42.394</td> <td style="text-align: right;">42.068</td> <td style="text-align: right;">7.938</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">63.475</td> <td style="text-align: right;">41.984</td> <td style="text-align: right;">41.464</td> <td style="text-align: right;">7.895</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.066</td> <td style="text-align: right; border-top: 1px solid black;">-0.410</td> <td style="text-align: right; border-top: 1px solid black;">-0.604</td> <td style="text-align: right; border-top: 1px solid black;">-0.043</td> </tr> <tr> <td colspan="5" style="padding: 10px 0 0 40px;">Summary of Adjustments</td> </tr> <tr> <td colspan="5" style="padding: 10px 0 0 40px;">Programmatic Adjustments</td> </tr> <tr> <td colspan="5" style="padding: 10px 0 0 40px;">Economic Assumptions</td> </tr> <tr> <td></td> <td style="text-align: right;">-0.066</td> <td style="text-align: right;">-0.410</td> <td style="text-align: right;">-0.604</td> <td style="text-align: right;">-0.043</td> </tr> <tr> <td colspan="5" style="padding: 10px 0 0 40px;">Subtotal</td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">-0.066</td> <td style="text-align: right; border-top: 1px solid black;">-0.410</td> <td style="text-align: right; border-top: 1px solid black;">-0.604</td> <td style="text-align: right; border-top: 1px solid black;">-0.043</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Schedule:</p> <p style="margin-top: 40px;">Not Applicable</p> <p style="margin-top: 20px;">(U) Technical:</p> <p style="margin-left: 20px;">Not Applicable</p>						FY 2004	FY 2005	FY 2006	FY 2007	(U) Funding:					FY05 President's Budget	63.541	42.394	42.068	7.938	FY06 President's Budget	63.475	41.984	41.464	7.895	Total Adjustments	-0.066	-0.410	-0.604	-0.043	Summary of Adjustments					Programmatic Adjustments					Economic Assumptions						-0.066	-0.410	-0.604	-0.043	Subtotal						-0.066	-0.410	-0.604	-0.043
	FY 2004	FY 2005	FY 2006	FY 2007																																																							
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R-1 SHOPPING LIST - Item No. 32

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 5 of 10)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4			PROGRAM ELEMENT NUMBER AND NAME 0603237N Deployable Joint Command & Control			PROJECT NUMBER AND NAME 3050 DJC2			

(U) D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
OPN BLI 2804	51,368	32,271	27,901	0	59,437	0	0	0	Cont.	Cont.

(U) E. ACQUISITION STRATEGY:

This RDT&E line supports an evolutionary acquisition strategy. The intent of this strategy is to: develop a system based upon a current understanding of joint requirements; rapidly field systems based upon those requirements; analyze operational utilization of the systems; and roll the results of the analysis into periodic upgrades of the systems to maintain currency and maximize operational effectiveness. The Increment I configuration will be based upon existing C4I systems, scaled to the Combatant Command level. The follow-on configurations will include newly developed capabilities based on emergent, joint requirements and operational feedback based upon utilization of earlier delivered systems.

(U) G. METRICS:

Earned Value Management (EVM) is used for metrics reporting and risk management.

R-1 SHOPPING LIST - Item No. 32

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: FEBRUARY 2005						
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4			PROGRAM ELEMENT 0603237N Deployable Joint Command & Control			PROJECT NUMBER AND NAME 3050 DJC2						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	VAR	NSWC, Crane, USA, & VAR	9.900	3.000	VAR	3.000	VAR			Continuing	Continuing	
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	VAR	VAR	19.175	6.461	VAR	12.000	VAR			Continuing	Continuing	
Training Development												
Engineering Facility Development	WX	NSWC, CSS	13.000	3.590	VAR	7.664	VAR	3.595		Continuing	Continuing	
Tooling												
GFE												
Award Fees												
Subtotal Product Development			42.075	13.051		22.664		3.595		Continuing	Continuing	
Remarks:												
Development Support												
Software Integration	VAR	NSWC, CSS & VAR	17.680	9.469	VAR	8.000	VAR			Continuing	Continuing	
Integrated Logistics Support												
Configuration Management												
Technical Investigations	VAR	NTA & VAR	6.309	3.000	VAR	3.000	VAR			Continuing	Continuing	
Trade-off Studies & Analyses	VAR	NTA & VAR	5.000	2.000	VAR	2.000	VAR			Continuing	Continuing	
GFE												
Award Fees												
Subtotal Support			28.989	14.469		13.000		0.000		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: FEBRUARY 2005						
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA 4			PROGRAM ELEMENT 0603237N Deployable Joint Command & Control			PROJECT NUMBER AND NAME 3050 DJC2						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MPR	46th Test Wing & VAR	3.000	4.000	VAR					Continuing	Continuing	
Operational Test & Evaluation	VAR	OPTEVFOR & VAR	3.500	4.000	VAR					Continuing	Continuing	
Live Fire Test & Evaluation												
Test Assets	MPR	Eglin AFB & VAR	1.000	1.000	VAR	1.000	VAR			Continuing	Continuing	
Tooling												
GFE												
Award Fees												
Subtotal T&E			7.500	9.000		1.000		0.000		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	VAR	NSWC, CSS & VAR	16.438	5.464	VAR	4.800	VAR	4.300		Continuing	Continuing	
Travel												
Transportation												
Subtotal Management			16.438	5.464		4.800		4.300		Continuing	Continuing	
Remarks:												
Total Cost			95.002	41.984		41.464		7.895		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA 4												0603237N Deployable Joint Command & Control												3050 DJC2											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Acquisition Milestones																																			
MILESTONE B																																			
		<div>Increment I</div>									<div>Increment II</div>																								
MILESTONE C																																			
						<div>Increment I</div>								<div>Increment II</div>																					
Test & Evaluation Milestones																																			
Development Test																																			
Operational Test				<div>DT / OA</div>																															
							<div>OT</div>																												
Production Milestones																																			
Deliveries																																			

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 32

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 10 of 10)

CLASSIFICATION:

UNCLASSIFIED

[illegible]

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Department of the Navy leadership is committed to Naval Unmanned Aerial Vehicles (UAVs) and to procuring an operational UAV capability as soon as possible. The Naval UAV Strategy employs a family of UAVs to perform tactical, persistent and penetrating ISR in support of Naval and Joint missions from forward bases and naval ships.

In support of the Navy's overall UAV strategy, this program develops Concept of Operations (CONOPS) that integrate UAVs into CNO/Navy Vision of Sea Power 21 (Sea Shield, Sea Strike, Sea Basing, and FORCEnet). By providing fleet input based on current operations with UAVs in a simulated combat environment, this CONOPS development investment is the foundation of how the Carrier Strike Group will operate a combined Manned and Unmanned Naval Air Force. Specifically:

- Demonstrates CONOPS and assesses manning requirements of a ship-based tactical UAV.
- Leverages and assesses joint utility of Global Hawk Maritime Demonstration System and Predator integration into Expeditionary and Carrier Strike Group operations.
- Demonstrates UAV integration into USN battlespace dominance operations and network centric warfare.
- Demonstrates UAV integration into USN sensor-to-shooter and Sea Strike.
- Supports development of Joint UAV CONOPS through ISR Time Sensitive Operations Joint Test and Evaluation (JTE).
- Develops Intelligence, Surveillance, and Reconnaissance CONOPS in support of strike, Military Operations Other Than War (MOOTW), Anti-Air Warfare (AAW), Combat Search and Rescue (CSAR).
- Demonstrates UAV cross-cueing capability with theater and strategic intelligence sources.
- Develop Tactics, Techniques, and Procedures for multi- dissimilar UAV control, operations, and data dissemination utilizing NATO STANAG 4586.

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 1 of 10)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603261N Tactical Airborne Reconnaissance				PROJECT NUMBER AND NAME 2467 UAV CONOPS			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
2467 UAV CONOPS Research	2.029	6.386	3.938	3.950	11.646	11.891	12.137	12.386
RDT&E Articles Qty								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603261N Tactical Airborne Reconnaissance	PROJECT NUMBER AND NAME 2467 UAV CONOPS																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.529	1.600	1.400	1.400															
RDT&E Articles Quantity																			
Naval Strike Warfare - Studies and Demonstrations for CONOPS development .																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.500</td><td style="text-align: center;">0.300</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.500	0.300			RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.500	0.300																	
RDT&E Articles Quantity																			
JTE UAV Support.																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		2.362	1.500	1.400															
RDT&E Articles Quantity																			
Standards Based - Develops NATO STANAG 4586 tool and validation capability to certify interoperability compliance. Conducts CONOPS studies for multiple dissimilar UAV interoperability.																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603261N Tactical Airborne Reconnaissance	PROJECT NUMBER AND NAME 2467 UAV CONOPS																	
B. Accomplishments/Planned Program (Cont.)																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		1.620	0.738	0.850															
RDT&E Articles Quantity																			
Shipboard CONOPS - Conducts CONOPS studies for data relay and weapons employment. Assesses manning requirements of ship based tactical UAV to identify manpower reduction opportunities.																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		0.504	0.300	0.300															
RDT&E Articles Quantity																			
Program office travel, and contract support services.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603261N Tactical Airborne Reconnaissance	PROJECT NUMBER AND NAME 2467 UAV CONOPS	

C. PROGRAM CHANGE SUMMARY:

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:	2.029	6.448	3.906	3.903
Current BES	2.029	6.386	3.938	3.950
Total Adjustments	0.000	-0.062	0.032	0.047
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.060		
Congressional rescissions				
SBIR/STTR Transfer				
Other		-0.002	-0.006	-0.004
Economic Assumptions			0.038	0.051
Reprogrammings				
Congressional increases				
Subtotal	0.000	-0.062	0.032	0.047

Schedule:

In FY2004 4Q CVW-XX demonstration exercise was cancelled. Schedule reflects current planning through FY 2011.

Technical:

Not Applicable

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Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 5 of 10)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603261N Tactical Airborne Reconnaissance	PROJECT NUMBER AND NAME 2467 UAV CONOPS
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <p>Not Applicable</p> <p>E. ACQUISITION STRATEGY:</p> <p>Not Applicable</p>		

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603261N Tactical Airborne Reconnaissance			2467 UAV CONOPS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Shipboard Integration	C/TBD	TBD		0.800	02/05	0.200	12/05	0.200	12/06	0.000	1.200	1.200
Ship Suitability											0.000	
Systems Engineering Test Tool	WX	NAWCAD, Pax River, MD		0.362	12/04	0.300	12/05	0.200	12/06		0.862	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	1.162		0.500		0.400		0.000	2.062	
Remarks:												
Development Support	WX	NSAWC, Fallon, NV		1.600	12/04	1.400	12/05	1.400	12/06	Continuing	Continuing	
Software Interoperability	C/CPAF	Raytheon, Falls Church, Va		1.500	03/05	0.800	12/05	0.800	12/06	0.000	3.100	3.100
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	3.100		2.200		2.200		Continuing	Continuing	
Remarks:												

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE, N / BA-4			0603261N Tactical Airborne Reconnaissance			2467 UAV CONOPS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	JUAV, Vicksburg, MS	0.500	0.300	12/04						0.800	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Interoperability Testing	MP	JTC/SIL Huntsville, AL		0.500	12/04	0.400	12/05	0.400	12/06		1.300	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.500	0.800		0.400		0.400		0.000	2.100	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support	WX	NAWCAD Pax River	1.529	0.820	12/04	0.538	11/05	0.650	11/06		3.537	
Program Management Support	WX	NAWCAD Pax River		0.454	12/04	0.250	11/05	0.250	11/06	Continuing	Continuing	
Travel	WX	NAWCAD Pax River		0.050	12/04	0.050	11/05	0.050	11/06	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			1.529	1.324		0.838		0.950		Continuing	Continuing	
Remarks:												
Total Cost			2.029	6.386		3.938		3.950		Continuing	Continuing	
Remarks:												

CVX-X

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:				February 2005				
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												
RDT&E, N / BA-4								0603261N Tactical Airborne Reconnaissance												2467 UAV CONOPS												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Test & Evaluation Milestones																																
Operational Test (Planning Schedule)	LGB TAC D&E ▲	CVW-14 ▲	CVW-3 ▲		CVW-XX ▲	CVW-XX △	CVW-XX △	Desert Rescue △	CVW-XX △	CVW-XX △	CVW-XX △	CVW-XX △	Desert Rescue △	CVW-XX △	CVW-XX △	CVW-XX △	CVW-XX △	Desert Rescue △	CVW-XX △	CVW-XX △	CVW-XX △	CVW-XX △	Desert Rescue △	CVW-XX △	CVW-XX △	CVW-XX △	Desert Rescue △	CVW-XX △	CVW-XX △	CVW-XX △	Desert Rescue △	
Tactics Development and Evaluation																																

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[illegible]

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 10 of 10)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603382N Advanced Combat System Technology	0324 Advanced Combat System Technology/9348 Improved Combat Information Center		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	5.475	8.219	7.617	7.761
RDT&E Articles Quantity				
OA Technical Architecture – Participation and contribution of key technical expertise that enables the development of an OACE (Open Architecture Core Environment) based on widely adopted open international standards that provides a common computing architecture as a foundation that permits the use of affordable computing concepts while still meeting stringent combat system performance and survivability requirements. Key areas of technical expertise include, but are not limited to, physical media, information transfer, operating systems, middleware, information management, resource management, information assurance, time synchronization, programming languages, development tools, and displays and participation across platforms.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.826	7.813	7.302	7.422
RDT&E Articles Quantity				
OA Functional Architecture – Continued participation of key technical expertise that enables the development of architectures connected by standardization of common functions and critical interfaces. Such architectures will be extensible and scaleable in function, capacity, and workload to meet Joint warfighting requirements across Platforms in the Joint Net-Centric Environment. This key technical expertise will also enable the identification and development of common warfare functions, applications, services, and computing programs and a reuse methodology. Process for initial Rapid Capability Insertion Process (RCIP) of new capability to end systems.				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology/9348 Improved Combat Information Center																	
B. Accomplishments/Planned Program (Cont.)																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">3.844</td><td style="text-align: center;">5.501</td><td style="text-align: center;">8.482</td><td style="text-align: center;">8.710</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	3.844	5.501	8.482	8.710	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	3.844	5.501	8.482	8.710															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 60px;">OA Test Facility – Continued participation of key technical expertise that enables OA application portability validation, Program of Record OA migration risk mitigation, OACE technology evaluations, verification of OA with legacy systems (connection with DEP), proof-of-concept for RCIP.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">1.514</td><td style="text-align: center;">3.318</td><td style="text-align: center;">5.768</td><td style="text-align: center;">5.863</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.514	3.318	5.768	5.863	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.514	3.318	5.768	5.863															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 60px;">OA Technical Support Services – Provide Technical Support Services for OA in the following areas: War Room operations, Coordination with Programs of Record, Asset Repository, Integrated Development Environment (IDE), Risk Management, Cost Analysis and Business Case Analysis. Provides senior engineering architecture expertise.</div>																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology/9348 Improved Combat Information Center																	
B. Accomplishments/Planned Program (Cont.)																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.000</td><td>1.000</td><td>0.997</td><td>0.997</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	1.000	0.997	0.997	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	1.000	0.997	0.997															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 60px;">OA Technology Bridging - Provides the new front-work required to prepare for tomorrow's OA technologies in support of OA COTS Technology Refresh. Work with Science & Technology (S&T) communities (e.g. DARPA and Office of Naval Research (ONR)) to provide domain specific problems on which to focus S&T investment and validation of candidate technologies against these challenge domain specific performance requirements. Provide engineering quality lessons learned and benchmarking information back to S&T sponsors and technology developers for enhancements. Ensure that emerging technology advances can be inserted at the proper time and pace to enable the management of COTS obsolescence throughout the OA lifecycle via the Technology Refresh Process that meets the Fleet's Technology Insertion cycles.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.000</td><td>41.100</td><td>0.000</td><td>0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	41.100	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	41.100	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 60px;">AEGIS OA Common Components - Builds upon Aegis Open Architecture 3-Spiral plan to define Combat System level requirements that adhere to OA guidance for commonality (OACE Category-4) across USN combat systems. Design Aegis Weapon System elements to be re-usable across USN combat systems.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>2.339</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.339	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	2.339	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 60px;">Improved Combat Information Center (CIC) - Congressional plus-up</div>																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603382N Advanced Combat System Technology	0324 Advanced Combat System Technology/9348 Improved Combat Information Center		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 04-05 Pres Controls)	5.730	67.605	61.637	31.168
Current BES: (FY06 PB)	14.998	66.951	30.166	30.753
Total Adjustments	9.268	-0.654	-31.471	-0.415
Summary of Adjustments				
Programmatic Adjustment		-0.014	-31.471	-0.415
Undistributed Congressional Adjsutements		-0.640		
FY04 SBIR	-0.019			
Cancelled Account	-0.008			
Execution Realignment	9.297			
FY04 Non-pay Inf	-0.002			
Subtotal	9.268	-0.654	-31.471	-0.415
Schedule:				
N/A				
Technical:				
N/A				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							February 2005			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N / 1319 BA-4		0603382N Advanced Combat System Technology			0324 Advanced Combat System Technology/9348 Improved Combat Information Center					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
E. ACQUISITION STRATEGY:										
Risk reduction efforts are lead and cordinated by NSWC/Dahlgren, the Open Architecture (OA) Technical Authority for PEO IWS 1.0. Open Architecture Technical Guidance documentation is produced and disseminated to the various programs of record for their use in becoming OA compliant. Additionally, an OA Test Facility is provided at NSWCDD for hosting early validation efforts by various programs of record in evaluating their progress toward OA compliance. All of these activities are being scaled to support ASN RDA and OPNAV direction to institute Open Architecture at the enterprise level and will be executed in a wide variety of locations.										
F. MAJOR PERFORMERS:										
NSWC/ Dahlgren - Dahlgren, Virginia - Technical Authority for OA Program for PEO IWS NUWC - NAVAIR - Industry: Raytheon, Lockheed Martin										

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603382N Advanced Comba		0324 Advanced Combat System Technology/9348 Improved Combat Information Center									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development														
Ancillary Hardware Development														
Component Development														
Systems Engineering	SS/CPFF	APL / Baltimore, MD	10.852	0.000		0.000		0.000		0.000		0.000	10.852	
Systems Engineering	WR	NSWC / Dahlgren, VA	18.813	12.349	12/03	31.573	10/04	30.117	10/05	30.277	10/06	Continuing	Continuing	
Systems Engineering	CPAF	Lockheed Martin, NJ	0.000	0.000		34.300								
Systems Engineering	WR	NAWCAD / St. Inigoes, MD	2.000	0.000		0.000		0.000		0.000		0.000	2.000	
Training Development		ONR	0.000	2.301										
Licenses														
Tooling														
GFE														
Award Fees						0.600								
Subtotal Product Development			31.665	14.650		66.473		30.117		30.277		Continuing	Continuing	
Remarks:														
Development Support	WR	Miscellaneous	0.572									Continuing	Continuing	
Software Development														
Training Development														
Integrated Logistics Support														
Configuration Management														
Technical Data														
GFE														
Award Fees														
Subtotal Support			0.572	0.000		0.000		0.000		0.000		Continuing	Continuing	
Remarks:														

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 7 of 10)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NUMBER AND NAME										
RDT&E, N / BA-4			0603382N Advanced Combat System		0324 Advanced Combat System Technology/9348 Improved Combat Information Center										
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation	WR	Miscellaneous	0.371									0.000	0.371		
Operational Test & Evaluation															
Live Fire Test & Evaluation															
Test Assets															
Tooling															
GFE															
Award Fees															
Subtotal T&E			0.371	0.000		0.000		0.000		0.000		0.000	0.371		
Remarks:															
Contractor Engineering Support															
Government Engineering Support															
Program Management Support	WR	Miscellaneous	1.221	0.348	11/03	0.478	TBD	0.049	TBD	0.476	TBD	Continuing	Continuing		
Travel															
Labor (Research Personnel)															
SBIR Assessment															
Subtotal Management			1.221	0.348		0.478		0.049		0.476		Continuing	Continuing		
Remarks:															
Total Cost			33.829	14.998		66.951		30.166		30.753		Continuing	Continuing		
Remarks:															

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 8 of 10)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																DATE: June 2004																
APPROPRIATION/BUDGET # PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME																				
RDT&E, N /BA-4 0603382N Advanced Combat System Technology												0324/Advanced Combat System Technology/9438/Improved Combat Information Center																				
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
OA Technical Stds & Design Guidance Design Reviews								9/1 Design Review △				9/30 Design Review △				9/30 Design Review △				9/30 Design Review △				9/30 Design Review △				9/30 Design Review △				
OA Functional Architecture Design Reviews								9/1 Design Review △				9/30 Design Review △				9/30 Design Review △				9/30 Design Review △				9/30 Design Review △				9/30 Design Review △			9/30 Design Review △	
Test & Evaluation Milestones																																
DDX Rel OA Validation Tests								7/15 REL 3 Validation Test △				7/15 REL 4 Validation Test △				7/15 REL 5 Validation Test △				7/15 REL 6 Validation Test △				7/15 REL 7 Validation Test △								
CG/DDG OA Validation Tests of Spirals								4/15 Spiral 1 Validation Test △				4/15 Spiral 2 Validation Test △								4/15 Spiral 3 Validation Test △				4/15 Spiral 4 Validation Test △								
CG/DDG OA																																
LCS OA Validation Tests																																
CVN/L-CLASS EDM																																
Production Milestones																																
Deliveries																																

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* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 9 of 10)

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R-1 SHOPPING LIST - Item No. 35

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 10 of 10)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								February 2005			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /						0603502N/Surface and Shallow Water Mine Countermeasure					
BA-4											
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Total PE Cost	765.887	126.231	108.016	122.122	140.480	161.880	245.151	233.104	240.239	Continuing	Continuing
Remote Minehunting System / 0260 / 2387	270.287	56.866	14.284	0.000	0.000	0.000	0.000	27.008	33.384	Continuing	Continuing
Mine Counter Measures Mid-Life Upgrades / 1233 / 2388	69.872	3.634	3.813	15.855	19.513	28.925	18.003	4.441	4.511	Continuing	Continuing
Unmanned Underwater Vehicle / 2094 / 2852	238.167	62.799	59.965	54.633	52.176	74.707	165.358	157.816	154.912	Continuing	Continuing
Assault Breaching System / 2131	187.561	2.932	26.808	29.215	37.530	36.551	35.897	31.246	30.446	Continuing	Continuing
Expendable Mine Neutralization System / 4025	0.000	0.000	2.155	11.506	14.030	0.000	0.000	0.000	0.000	0.000	27.691
BPUAV/9513	0.000	0.000	0.991	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.991
Low Frequency Broadband / 3102	0.000	0.000	0.000	9.850	15.470	18.132	23.895	10.552	14.902	Continuing	Continuing
SMCM UUV / 3123	0.000	0.000	0.000	1.063	1.761	3.565	1.998	2.041	2.084	Continuing	Continuing
Quantity of RDT&E Articles											0.000
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:											
<p>The program provides for developments to combat the threat of known and projected foreign mines against U.S. Naval and merchant shipping in harbors, channels, choke points, sea lines of communications and amphibious and other fleet operating areas. It develops: (1) organic remote minehunting capability for surface platforms; (2) the integration and improvement of systems and support for systems which will detect, localize and classify moored, bottom, and close-tethered mines for use in Mine Countermeasure (MCM) MCM-1 Class, Mine Hunter Coastal (MHC) MHC-51 Class, and other surface ships; (3) systems for neutralizing mines and light obstacles from shallow water, very shallow water, surf zones, and beach landing craft zones in support of amphibious operations; (4) Unmanned Undersea Vehicle (UUV) systems for clandestine mine reconnaissance.</p>											
(U) B. JUSTIFICATION FOR BUDGET ACTIVITY:											
<p>This program is funded under DEMONSTRATION AND VALIDATION because it develops and integrates hardware for experimental testing related to specific ship or aircraft applications.</p>											

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE																																														
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /		BA-4 0603502N/Surface and Shallow Water Mine Countermeasure																																														
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 35%;">(U) B. PROGRAM CHANGE SUMMARY:</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">145.678</td> <td style="text-align: right;">103.308</td> <td style="text-align: right;">100.114</td> <td style="text-align: right;">89.286</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">126.231</td> <td style="text-align: right;">108.016</td> <td style="text-align: right;">122.122</td> <td style="text-align: right;">140.480</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-19.447</td> <td style="text-align: right; border-top: 1px solid black;">4.708</td> <td style="text-align: right; border-top: 1px solid black;">22.008</td> <td style="text-align: right; border-top: 1px solid black;">51.194</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td style="padding-left: 20px;">FY04 Omnibus Reprogramming</td> <td style="text-align: right;">-10.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td style="padding-left: 20px;">FY04 SBIR</td> <td style="text-align: right;">-3.243</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td style="padding-left: 20px;">MISC Adjustments</td> <td style="text-align: right;">-6.204</td> <td style="text-align: right;">4.708</td> <td style="text-align: right;">22.008</td> <td style="text-align: right;">51.194</td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">-19.447</td> <td style="text-align: right; border-top: 1px solid black;">4.708</td> <td style="text-align: right; border-top: 1px solid black;">22.008</td> <td style="text-align: right; border-top: 1px solid black;">51.194</td> </tr> </tbody> </table> <p style="margin-top: 10px;">(U) Schedule: <u>RMS</u> Plan is to procure four Remote Mine Hunting Vehicles (RMVs) production systems in FY05 and FY06 and deliver in FY06 and FY07. Also procure two additional RMVs in FY07.</p> <p style="margin-top: 10px;">(U) Technical: Not Applicable</p>				(U) B. PROGRAM CHANGE SUMMARY:	FY 2004	FY 2005	FY 2006	FY 2007	FY05 President's Budget	145.678	103.308	100.114	89.286	FY06 President's Budget	126.231	108.016	122.122	140.480	Total Adjustments	-19.447	4.708	22.008	51.194	Summary of Adjustments					FY04 Omnibus Reprogramming	-10.000	0.000	0.000	0.000	FY04 SBIR	-3.243	0.000	0.000	0.000	MISC Adjustments	-6.204	4.708	22.008	51.194		-19.447	4.708	22.008	51.194
(U) B. PROGRAM CHANGE SUMMARY:	FY 2004	FY 2005	FY 2006	FY 2007																																												
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R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM				PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems					
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 20010	FY 2011	Cost to Complete	Total Program
Project Cost	270.287	56.866	14.284	0.000	0.000	0.000	0.000	27.008	33.384	Continuing	Continuing
RDT&E Articles Qty	2	1	0	0							3
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The Remote Minehunting System (RMS), AN/WLD-1(V)1, program develops a new remotely operated minehunting system for surface ships. This effort includes development and integration of a remote minehunting vehicle, minehunting sensors, mission command and control, and installation into the DDG-51 Class Flight IIA Baseline 7 and AN/SQQ-89(V)15 Undersea Warfare Combat System. Future funding addresses key areas such as minesweeping, mine neutralization, in-situ environmental characterization, sensor upgrades and subsystem upgrades to address emergent fleet requirements, enhanced mission capabilities and/or system deployment from new platforms. Future funding will be used to begin development of emerging technologies for incorporation into the AN/WLD-1(V) Remote Minehunting System and Littoral Combat Ship (LCS) Reconfigurable Mission Capabilities (Multi-Mission - MM).</p>											

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 30%;">Product Development</td><td style="width: 15%;">FY 04</td><td style="width: 15%;">FY 05</td><td style="width: 15%;">FY 06</td><td style="width: 15%;">FY 07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>43.224</td><td>8.281</td><td>0.000</td><td>0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td>1</td><td></td><td></td><td></td></tr></table>					Product Development	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	43.224	8.281	0.000	0.000	RDT&E Articles Quantity	1			
Product Development	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	43.224	8.281	0.000	0.000															
RDT&E Articles Quantity	1																		
<div style="border: 1px solid black; min-height: 100px; margin-top: 10px;"></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 30%;">Support</td><td style="width: 15%;">FY 04</td><td style="width: 15%;">FY 05</td><td style="width: 15%;">FY 06</td><td style="width: 15%;">FY 07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>5.476</td><td>3.619</td><td>0.000</td><td>0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td>1</td><td></td><td></td><td></td></tr></table>					Support	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	5.476	3.619	0.000	0.000	RDT&E Articles Quantity	1			
Support	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	5.476	3.619	0.000	0.000															
RDT&E Articles Quantity	1																		
<div style="border: 1px solid black; min-height: 100px; margin-top: 10px;"></div>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems		
(U) B. Accomplishments/Planned Program				
T&E	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	6.933	1.229	0.000	0.000
RDT&E Articles Quantity	1			
<div style="border: 1px solid black; min-height: 100px; margin-top: 10px;"> <p>Conducted DT Assist of the Datalink Subsystem for the RMS Shipboard Equipment. Begin test preparation for TECHEVAL Phase I on ship. Complete test preparation and conduct TECHEVAL Phase I and II for the RMS. Conduct and complete OPEVAL.</p> </div>				
<div style="border: 1px solid black; min-height: 100px; margin-top: 10px;"> </div>				
Management	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.233	1.155	0.000	0.000
RDT&E Articles Quantity	1			
<div style="border: 1px solid black; min-height: 100px; margin-top: 10px;"> <p>Funds provided for COMOPTEVFOR and Program Management Support and Travel.</p> </div>				
TOTAL	56.866	14.284	0.000	0.000

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EXHIBIT R-2a, RDT&E Project Justification							DATE:				February 2005	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			0260/2387, Remote Minehunting Systems						
(U) D. OTHER PROGRAM FUNDING SUMMARY:												
<u>Line Item No. & Name</u>			<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
2622 / OPN												
RMS			0.000	35.031	50.840	15.649	0.000	0.000	6.000	6.000	Continued	Continued
Support			0.000	1.603	4.449	2.345	0.000	0.000	0.000	0.000	Continued	Continued
Total			0.000	36.634	55.289	17.994	0.000	0.000	6.000	6.000	Continued	Continued
(U) RDT&E, Line 0604373, 0529			18.075	4.750	3.421	4.797	3.419	0.808	9.830	20.781	Continued	Continued
(U) E. ACQUISITION STRATEGY:												
The government issued a series of contract modifications to Lockheed Martin to complete efforts through the System Design Review. Based upon the approved Milestone II decision the program office issued the contract modification to complete the Critical Design Review (CDR); upon completion of CDR a CPIF sole source contract was awarded to Lockheed Martin to complete the development, fabrication, and testing of the engineering development models, initial pilot line/tooling, and timed phased procurement of initial systems to meet ship delivery schedules. The government has worked with the contractor in an IPT environment to refine the specification and Statement of Work for the overall development effort. The IPT pricing process was used to generate the cost estimates against Navy requirements. The government will pursue commonality between the AN/AQS-20A airborne minehunting system and the AN/WLD-1(V)1. The AN/WLD-1(V)1 contract plan is for the development of EDMs, system interactive electronic technical manual (IETM), provisioning data, technical drawings and data, and engineering services. The 4 EDM remote minehunting vehicles are required to meet ship schedules for DDG ship deliveries prior to receiving follow-on production units and to support the stand-up of the maintenance and training facilities.												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE: February 2005							
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			0260/2387, Remote Minehunting Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development & Integration	CPIF	Lockheed Martin	97.283										97.283	
Hardware Development & Integration	CPIF	Lockheed Martin	42.445	39.191	11/03	6.342	11/04						87.978	
Hardware Development & Integration	WX	NSWC, Panama City, FL	4.375	1.796	10/03	0.969	10/04						7.140	
Systems Engineering	CPIF	Lockheed Martin	5.465										5.465	
Systems Engineering	CPIF	Lockheed Martin	4.248	1.753	11/03	0.485	11/04						6.486	
Systems Engineering	WX	NSWC, Panama City, FL	0.946	0.484	10/03	0.485	10/04						1.915	
Award Fees			5.485										5.485	
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			0260/2387, Remote Minehunting Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	CPIF	Lockheed Martin	7.092										7.092	
Software Development	CPIF	Lockheed Martin	6.159	0.414	11/03	0.388	11/04						6.961	
Software Development	WR	NSWC, Panama City, FL	1.561	0.290	10/03	0.291	10/04						2.142	
ILS	CPIF	Lockheed Martin	5.682										5.682	
ILS	CPIF	Lockheed Martin	5.932	3.009	11/03	1.163	11/04						10.104	
ILS	WX	NSWC, Panama City, FL	1.493	0.290	10/03	0.291	10/04						2.074	
Ship Integration	CPIF	Lockheed Martin	1.258										1.258	
Ship Integration	CPIF	Lockheed Martin	1.813	0.677	11/03	0.388	11/04						2.878	
Ship Integration**	Various	Various	11.557	0.796	12/03	1.098	12/04						13.451	
													0.000	
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													0.000	
Subtotal Support			42.547	5.476		3.619		0.000		0.000		0.000	51.642	
Remarks: Various in Ship Integration provides funding to support AN/SQQ-89(V)15 ECP effort for RMS and RMS DDG ship class integration efforts.														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 0260/2387, Remote Minehunting Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	CPIF	Lockheed Martin	18.470										18.470	
Developmental Test & Evaluation	CPIF	Lockheed Martin	11.107	2.513	11/03	0.590	11/04						14.210	
Developmental Test & Evaluation	WX	NSWC, Panama City, FL	3.105	4.420	11/03	0.639	10/04						8.164	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal T&E			32.682	6.933		1.229		0.000		0.000		0.000	40.844	
Remarks:														
Contractor Engineering Support	CPIF	Lockheed Martin	2.919			0.780							3.699	
Government Engineering Support	WX	NSWC, Panama City, FL	22.393										22.393	
Program Management Support	CPFF	CACI	2.874	1.146	11/03	0.288	11/04						4.308	
Travel	Various	NAVSEA	0.264	0.087	Various	0.087	Various						0.438	
SBIR Assessment	Various	Various	6.361										6.361	
													0.000	
Subtotal Management			34.811	1.233		1.155		0.000		0.000		0.000	37.199	
Remarks: Award dates for management are various because multiple activities are receiving tasks at different times during the fiscal year.														
Total Cost			270.287	56.866		14.284		0.000		0.000		0.000	341.437	
Remarks:														




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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 9 of 94)

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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE: February 2005																			
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																			
RDT&E, N/BA-4								0603502N, Surface & Shallow Water MCM								0260/2387, Remote Minehunting Systems																			
AN/WLD-1(V)1 PROGRAM SCHEDULE																																			
				FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Milestone III (MS C) Events Supportability Readiness Review Functional & Physical Configuration Audit (FCA)/(PCA) Production Readiness Review Production Contract Award Contract (N00024-02-C-6309) EMD Phase II /Pilot line/ Time phased Procurement Deliveries Test & Evaluation Operations and Maintenance Support								MS C LRIP(3)				FRPD																							
																																			
																																			
																																			
								LRIP				Production																							
												Production Support																							
																LRIP Delivery				Production Units 5-10 Delivery															
								OA				DT/OT Ship of Opportunity																							

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 10 of 94)

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 11 of 94)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM				PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades					
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Project Cost	69.872	3.634	3.813	15.855	19.513	28.925	18.003	4.441	4.511	Continuing	Continuing
RDT&E Articles Qty											
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>(1) High-Frequency, Wide Band (HFWB) is a technology upgrade to the SQQ-32 Towed Body which will incorporate HFWB technology into the detection sonar to address performance deficiencies against new mine threats in the littorals. This upgrade will be installed on MCM-1 Class ships with the SQQ-32(V)3 and will develop new transducer modules, fiber optic cable and modify topside processing and display software. 2) Mine Warfare and Environmental Decision Aids Library (MEDAL) is a software segment on the Global Command and Control System – Maritime (GCCS-M). MEDAL provides mine and mine warfare planning and evaluation tools and databases to the MCM Commander. (3) MCM Command Control, Communication, Computers and Intelligence (C4I) meet FORCEnet implementation standards; develop and maintain Mine Warfare (MIW) C4I Surveillance and Reconnaissance (C4ISR) architecture; identify and validate C4ISR shortfalls. 4) Develop and implement Course of Action Planner (COAP). 5) Battle Space Profiler (BSP) is used to optimize sonar setup (towed body depth and D/E angles), support mission planning based on predicted sonar performance, and adapt mission planning to changes in the environment and threats. Improvement to the BSP system will allow the BSP to become an in situation real time environmental data collection system and will allow sharing pertinent data such as MEDAL contact and environmental databases, as well as all Navigation information. 6) Unmanned Submersible Vehicle (USV) Sweep System is a magnetic/acoustic sweep system developed to sweep acoustic/magnetic influence mines from a small unmanned surface platform deployed from the Littoral Combat Ship (LCS).</p>											

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades		
(U) B. Accomplishments/Planned Program				
BSP / Product Development	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.155	0.370
RDT&E Articles Quantity				
Develop NAVO and NRL products into an integrated Battle Space Profiler System.				
BSP / Support	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.110	0.050
RDT&E Articles Quantity				
Develop logistics products, including training materials and interactive technical manual.				
BSP / Management	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.320	0.106
RDT&E Articles Quantity				
Management: Provide program management support and travel for BSP program.				
BSP TOTAL	0.000	0.000	1.585	0.526

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades		
(U) B. Accomplishments/Planned Program				
C4I / Product Development	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.348	0.600	0.720	0.767
RDT&E Articles Quantity				
Product Development: Continue MIW information system engineering effort. This effort to include the ongoing development of the MIW C4ISR Architecture, which documents the Information Exchange Requirements of the MIW community and serves as Architecture for all MIW Programs of Record as required by DODI 5000.2. Rev 2 Architecture. Rev 3 Architecture. Rev 4 Architecture.				
C4I / Support	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.302	0.350	0.300	0.400
RDT&E Articles Quantity				
Support: Identification of C4ISR shortfalls within the MIW community and analysis of potential solutions are accomplished through membership on the FORCEnet Requirements and Architecture Working Groups. System Engineering Support is also provided to the SMCM Class identifying class issues and seeking engineering solutions. The MIW Architecture is utilized to conduct assessments in order to identify shortfalls and provide C4ISR solutions to the MIW community. Specific ongoing initiatives include the continued MIW C4ISR assessment, MCM/MHC LAN improvement program, continued MEDAL/TEDS integration, and the integration of MIW tactical databases into the Global Enterprise Systems.				
C4I / Management	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.236	0.182	0.153	0.223
RDT&E Articles Quantity				
Management: Provide program management support and travel for MIW C4I program.				
C4I TOTAL	0.886	1.132	1.173	1.390

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades		

(U) B. Accomplishments/Planned Program

COAP / Product Development	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.885	0.902
RDT&E Articles Quantity				

Product Development:
 Begin the development and design of Build 0. Continue testing and delivery of Build 0. Begin development and design of Build 1. Continue the development and design of Build 1. Continue testing and delivery of Build 1. Begin development and design of Build 2.

COAP / Support	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.110	0.110
RDT&E Articles Quantity				

Support:
 Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness in reducing the complexity of the MCM planning problem into a manageable set of options depending on the operational objective. Support effort to include communication with activities such as ONR and NSWC-PC to coordinate the incorporation of validated algorithms and models into MEDAL with the Commander's Estimate of the Situation framework in order to effectively simplify the MCM planning problem for CSG and ESG staffs and therefore provide the speed, agility, adaptability, and flexibility required for modern MCM operations.

COAP / Management	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.094	0.080
RDT&E Articles Quantity				

Management:
 Provide program management support and travel for Course Of Action Planner program. Program management shall include overall technical guidance and leadership for the program. Other ongoing PM support includes oversight of financial and logistics efforts and adequate coordination with MEDAL. Other PM tasking to include briefings, demonstrations, and project planning as required.

COAP TOTAL	0.000	0.000	1.089	1.092
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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">GCCS-M4X / Product Development</td> <td style="padding: 5px; text-align: center;">FY 04</td> <td style="padding: 5px; text-align: center;">FY 05</td> <td style="padding: 5px; text-align: center;">FY 06</td> <td style="padding: 5px; text-align: center;">FY 07</td> </tr> <tr> <td style="padding: 5px;">Accomplishments/Effort/Subtotal Cost</td> <td style="padding: 5px; text-align: center;">0.000</td> <td style="padding: 5px; text-align: center;">0.000</td> <td style="padding: 5px; text-align: center;">0.475</td> <td style="padding: 5px; text-align: center;">0.000</td> </tr> <tr> <td style="padding: 5px;">RDT&E Articles Quantity</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </table>					GCCS-M4X / Product Development	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.475	0.000	RDT&E Articles Quantity				
GCCS-M4X / Product Development	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.475	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> Product Development: Develop and integrate GCCS-M 4.x hardware for M-class ships and expeditionary units. This effort includes the identification, approval, design, planning, programming, budgeting and accomplishment of improvements that increase the ability of the MIW ships to perform assigned missions. This is the first step in a larger plan to upgrade the MCM and MHC Class ships to the full IT-21 suite by rapidly inserting the minimum components enabling the MCM fleet to maximize operational effectiveness and minimize associated risk for own force and supported joint forces. </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">GCCS TOTAL</td> <td style="padding: 5px; text-align: center;">0.000</td> <td style="padding: 5px; text-align: center;">0.000</td> <td style="padding: 5px; text-align: center;">0.475</td> <td style="padding: 5px; text-align: center;">0.000</td> </tr> </table>					GCCS TOTAL	0.000	0.000	0.475	0.000										
GCCS TOTAL	0.000	0.000	0.475	0.000															

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades		
(U) B. Accomplishments/Planned Program				
HFWB / Product Development	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	5.335	5.725
RDT&E Articles Quantity				
Begin Design and fabrication of transducer and associated electronics; Integration of fiber optic tow cable; Design and selection of shipboard COTS processing and operator console components. Continue design and fabrication efforts; Begin laboratory integration, testing and in-water component tests.				
HFWB / Support	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.600	2.500
RDT&E Articles Quantity				
Develop beamforming and display software; Modify existing software and integration of new software; Integrated Logistic Support (ILS): Develop ICDs, installation packages, technical manual and training updates. Continue software development and integration; Integrated Logistic Support (ILS): Continue ILS efforts.				
HFWB / T&E	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.175	0.725
RDT&E Articles Quantity				
Conduct component and development Environmental Qualification Testing (EQT).				
HFWB / Management	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.812	0.974
RDT&E Articles Quantity				
Management: Provide program management support and travel for High Frequency Wideband program.				
HFWB TOTAL	0.000	0.000	8.922	9.924

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades																	
(U) B. Accomplishments/Planned Program																			
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MEDAL / Support	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	2.305	2.306	2.150	2.145															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">MEDAL / Management</td> <td style="padding: 5px;">FY 04</td> <td style="padding: 5px;">FY 05</td> <td style="padding: 5px;">FY 06</td> <td style="padding: 5px;">FY 07</td> </tr> <tr> <td style="padding: 5px;">Accomplishments/Effort/Subtotal Cost</td> <td style="padding: 5px;">0.443</td> <td style="padding: 5px;">0.375</td> <td style="padding: 5px;">0.461</td> <td style="padding: 5px;">0.467</td> </tr> <tr> <td style="padding: 5px;">RDT&E Articles Quantity</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </table> <p style="margin-top: 10px;">Management: Provide program management support and travel for MEDAL program. Program management shall include overall technical guidance and leadership for the program. Other ongoing PM support includes oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. As part of the systems engineering element of PM, communicate and coordinate with MIW C4ISR, ICWS, Organic MCM, Mainstreaming MIW, Expeditionary Warfare C4ISR, tactics development, long term planning, NSCT-1, and other programs as they relate to MEDAL and MIW Mission Planning, Evaluation, and C4ISR. Other PM tasking to include briefings, demonstrations, and project planning as required.</p>					MEDAL / Management	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.443	0.375	0.461	0.467	RDT&E Articles Quantity				
MEDAL / Management	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.443	0.375	0.461	0.467															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">MEDAL TOTAL</td> <td style="padding: 5px;">2.748</td> <td style="padding: 5px;">2.681</td> <td style="padding: 5px;">2.611</td> <td style="padding: 5px;">2.612</td> </tr> </table>					MEDAL TOTAL	2.748	2.681	2.611	2.612										
MEDAL TOTAL	2.748	2.681	2.611	2.612															

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades		
(U) B. Accomplishments/Planned Program				
USV / Product Development	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	1.969
RDT&E Articles Quantity				
Hardware and Software Developement of magnetic/acoustic sweep system for small unmanned surface platform .				
USV / Support	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.800
RDT&E Articles Quantity				
Logistics and integration Support for Boat Platform and Host Platform/LCS.				
USV / T&E	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.600
RDT&E Articles Quantity				
Risk Reduction Testing/ CT/DT/OT Planning.				
USV / Management	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.600
RDT&E Articles Quantity				
Program Management/Travel/TDA Costs.				
USV TOTAL	0.000	0.000	0.000	3.969

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 1233, Mine Counter Measures Mid-Life Upgrades				

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
2622 / OPN (LV075/LV076/LV080)	9.112	16.396	26.349	24.059	10.536	33.368	39.691	44.335	Continuing	Continuing

(U) E. ACQUISITION STRATEGY:

HFVB - NSWC, Panama City will team with a university laboratory to design and develop the HFVB upgrade to the AN/SQQ-32. Contract award for Integration Contractor.

BSP - The system is being developed by NAVO, NRL and Naval Surface Warfare Center Panama City. The improvements being incorporated into the BSP system are modifications to existing Naval Oceanographic Office and NRL products

Mine Warfare and Environmental Decision Aids Library (MEDAL) - requirements for MEDAL Builds are generated through a formal requirements process. Requirements conferences gather a list of candidate functions based on a logical sequence to fully implement the overall software architecture. The fleet is presented with a recommended list of candidate capabilities based on this program plan, doctrine, fleet comments, and technology. These capability items are then prioritized by the fleet representatives (coordinated by Commander Mine Warfare Command). The fleet inputs are then consolidated by COMINEWARCOM into an overall list which is then presented to Navy leadership for pricing and final selection. The selection is based on price, risk, available funding, and possibly by other program factors (e.g., ensure that MEDAL supports other program delivery schedules). Selection balances immediate needs, long term objectives, technical maturity and other programmatic factors. A verification and validation process is applied to any algorithms, tactics, or models to be incorporated in the software.

COAP Acquisition strategy for COAP is to deliver the software module within MEDAL builds.

USV- NSWC Panama City will be the technical design agent and will award a prime contract for SD&D development of the Unmanned Vehicle Sweep system designed to sweep mines in the Littoral Waters. The SD&D phase will be followed by Milestone C / LRIP Decision. Production Decision and Production follows LRIP.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			1233, Mine Counter Measures Mid-Life Upgrades								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(BSP) Develop Bottom Sediment Cla	WX	NRL	0.000			0.000		0.406	10/05	0.024	10/06	Continuing	Continuing	
(BSP) Develop Current Profiler	CPIF	NAVO	0.000			0.000		0.217	10/05	0.120	10/06	Continuing	Continuing	N/A
(BSP) Develop Hydro-Optics Packag	WX	NAVO	0.000			0.000		0.200	10/05			0.000	0.200	
Systems Engineering	Various	NSWC, PC/NAVAIR						0.100	11/05	0.066	11/06	Continuing	Continuing	
(BSP) System Integration	WX	NSWC, Panama City, FL	0.000			0.000		0.232		0.160		Continuing	Continuing	
Subtotal Product Development			0.000	0.000		0.000		1.155		0.370		0.000	1.525	
Remarks:														
(BSP) Develop Logistics Products	WX	NSWC, Panama City, FL	0.000			0.000		0.110		0.050		Continuing	Continuing	N/A
													0.000	
Subtotal Support			0.000	0.000		0.000		0.110		0.050		0.000	0.160	
Remarks:														
													0.000	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Program Mangement Support	CPFF	CACI						0.050	10/05	0.030	10/06	Continuing	Continuing	N/A
Travel	Various	NAVSEA	0.000					0.080		0.020		Continuing	Continuing	
Government Engineering Support	WX	NSWC, Panama City, FL						0.190		0.056		Continuing	Continuing	N/A
Subtotal Management			0.000	0.000		0.000		0.320		0.106		0.000	0.426	
Remarks:														
BSP TOTAL			0.000	0.000		0.000		1.585		0.526		0.000	2.111	
1.585														

1.585

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 21 of 94)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:							
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			1233, Mine Counter Measures Mid-Life Upgrades									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Systems Engineering	Various	NSWC, PC/NAVAIR		0.348	11/03	0.600	11/04	0.720	11/05	0.767	11/06	Continuing	Continuing		
													0.000	N/A	
													0.000		
													0.000		
Subtotal Product Development			0.000	0.348		0.600		0.720		0.767		0.000	2.435		
Remarks:															
Software Development	WX	NSWC, Panama City, FL		0.302	11/03								0.302	N/A	
Software Development	SS/FFP	SAIC				0.350	11/04	0.300	11/05	0.400	11/06	Continuing	Continuing		
Subtotal Support			0.000	0.302		0.350		0.300		0.400		0.000	1.352		
Remarks:															
													0.000		
													0.000		
													0.000		
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															
Program Management Support	CPFF	CACI		0.110	11/03	0.058	11/04	0.050	10/05	0.045	10/06	Continuing	Continuing	N/A	
Travel				0.039		0.035						Continuing	Continuing		
Government Engineering Support	WX	NSWC, Panama City, FL						0.103		0.178			0.281		
Program Management Support	Various	NAVSEA		0.068	11/03	0.089	11/04					Continuing	Continuing	N/A	
SBIR Assessment				0.019								0.000	0.019	N/A	
Subtotal Management			0.000	0.236		0.182		0.153		0.223		0.000	0.794		
Remarks:															
C4I TOTAL			0.000	0.886		1.132		1.173		1.390		0.000	4.581		

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:							
APPROPRIATION/BUDGET ACTIVITY								February 2005							
RDT&E, N / BA-4			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
			0603502N, Surface and Shallow Water MCM			1233, Mine Counter Measures Mid-Life Upgrades									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Systems Engineering	Various	NSWC, PC/NAVAIR	0.000	0.000		0.000		0.885	11/05	0.902	11/06	Continuing	Continuing		
													0.000	N/A	
													0.000		
													0.000		
Subtotal Product Development			0.000	0.000		0.000		0.885		0.902		0.000	1.787		
Remarks:															
Software Development	SS/FFP	SAIC						0.110	11/05	0.110	11/06	Continuing	Continuing	N/A	
													0.000		
Subtotal Support			0.000	0.000		0.000		0.110		0.110		0.000	0.220		
Remarks:															
													0.000		
													0.000		
													0.000		
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															
Program Management Support	CPFF	CACI						0.045	10/05	0.050	10/06	Continuing	Continuing	N/A	
Travel								0.005		0.005		Continuing	Continuing		
Government Engineering Support	WX	NSWC, Panama City, FL						0.044		0.025		Continuing	Continuing	N/A	
Subtotal Management			0.000	0.000		0.000		0.094		0.080		0.000	0.174		
Remarks:															
COAP TOTAL			0.000	0.000		0.000		1.089		1.092		0.000	2.181		

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 23 of 94)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			1233, Mine Counter Measures Mid-Life Upgrades								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	Various	NSWC, PC/NAVAIR						0.475	11/05			0.000	0.475	
													0.000	N/A
													0.000	
													0.000	
Subtotal Product Development			0.000	0.000		0.000		0.475		0.000		0.000	0.475	
Remarks:														
													0.000	N/A
													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
													0.000	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
													0.000	N/A
													0.000	N/A
													0.000	N/A
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
GCCS TOTAL			0.000	0.000		0.000		0.475		0.000		0.000	0.475	

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005							
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			1233, Mine Counter Measures Mid-Life Upgrades									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	WX	ARL:UT						3.410	11/05	3.750	11/06	Continuing	Continuing		
Ancillary Hardware Development	TBD	Contractor (TBD)						0.650	03/06	1.400	11/06	Continuing	Continuing	N/A	
Tow Cable Development	WX	NSWC, Panama City, FL						0.850		0.330		Continuing	Continuing		
Ship Integration	WX	NSWC, Panama City, FL						0.425		0.245		Continuing	Continuing		
Subtotal Product Development			0.000	0.000		0.000		5.335		5.725		0.000	11.060		
Remarks:															
(HFWB) Software Development	WX	ARL:UT; NSWC:PC						1.750	11/05	1.400	11/06	Continuing	Continuing	N/A	
(HFWB) Integrated Logistics Support	WX	NSWC, Panama City, FL						0.850		1.100		Continuing	Continuing		
Subtotal Support			0.000	0.000		0.000		2.600		2.500		0.000	5.100		
Remarks:															
Developmental Test & Evaluation	WX	NSWC:PC, ARL:UT						0.175	11/05	0.725	11/06	Continuing	Continuing		
													0.000		
Subtotal T&E			0.000	0.000		0.000		0.175		0.725		0.000	0.900		
Remarks:															
Program Management Support	Various	NAVSEA						0.662	10/05	0.774	10/06	Continuing	Continuing	N/A	
Travel	PD	Various											0.000		
Government Engineering Support	WX	NSWC, Panama City, FL						0.150		0.200			0.350	N/A	
Subtotal Management			0.000	0.000		0.000		0.812		0.974		0.000	1.786		
Remarks:															
HFWB TOTAL			0.000	0.000		0.000		8.922		9.924		0.000	18.846		

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			1233, Mine Counter Measures Mid-Life Upgrades								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
													0.000	
													0.000	N/A
													0.000	
													0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Software Development	SS/FFP	SAIC		2.084	11/03	2.306	11/04	2.150	11/05	2.145	11/06	Continuing	Continuing	N/A
Software Development	WX	NSWC, Panama, City, FL		0.221								Continuing	Continuing	
Subtotal Support			0.000	2.305		2.306		2.150		2.145		0.000	8.906	
Remarks:														
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Program Management Support	CPFF	CACI		0.196	11/03	0.094	11/04	0.150	10/05	0.125	10/06	Continuing	Continuing	N/A
Travel				0.061		0.063		0.015				Continuing	Continuing	
SBIR Assessment				0.054								0.000	0.054	
Government Engineering Support	WX	NSWC, Panama, City, FL						0.296		0.342		Continuing	Continuing	
Program Management Support	Various	NAVSEA		0.132		0.218						0.350	0.350	N/A
Subtotal Management			0.000	0.443		0.375		0.461		0.467		0.350	2.096	
Remarks:														
MEDAL TOTAL			0.000	2.748		2.681		2.611		2.612		0.350	11.002	

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UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 26 of 94)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			1233, Mine Counter Measures Mid-Life Upgrades									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	TBD	TBD								1.669	11/06	Continuing	Continuing		
Primary Hardware Development	WX/RCP	NSWC, Panama City, FL								0.300		Continuing	Continuing	N/A	
													0.000		
Subtotal Product Development			0.000	0.000		0.000		0.000		1.969		0.000	1.969		
Remarks: All work contracted to Raytheon on the CPIF contract was transferred to Lockheed Martin FP contract and NSWC, CSS Panama City, Florida.															
Logistics Support and Integration	Various	TBD								0.800		Continuing	Continuing	N/A	
													0.000		
													0.000		
Subtotal Support			0.000	0.000		0.000		0.000		0.800		0.000	0.800		
Remarks:															
Developmental Test & Evaluation	CPIF	TBD								0.600	11/06	Continuing	Continuing		
													0.000		
													0.000		
Subtotal Support			0.000	0.000		0.000		0.000		0.600		0.000	0.600		
Remarks:															
Contractor Engineering Support	CPIF	CACI								0.200	11/06	Continuing	Continuing	N/A	
Government Engineering Support	WX	NSWC, Panama City, FL								0.325		Continuing	Continuing	N/A	
Travel		NAVSEA								0.075		Continuing	Continuing	N/A	
Subtotal Support			0.000	0.000		0.000		0.000		0.600		0.000	0.600		
Remarks:															
USV TOTAL			0.000	0.000		0.000		0.000		3.969		0.000	3.969		

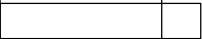




R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 27 of 94)

UNCLASSIFIED

CLASSIFICATION:

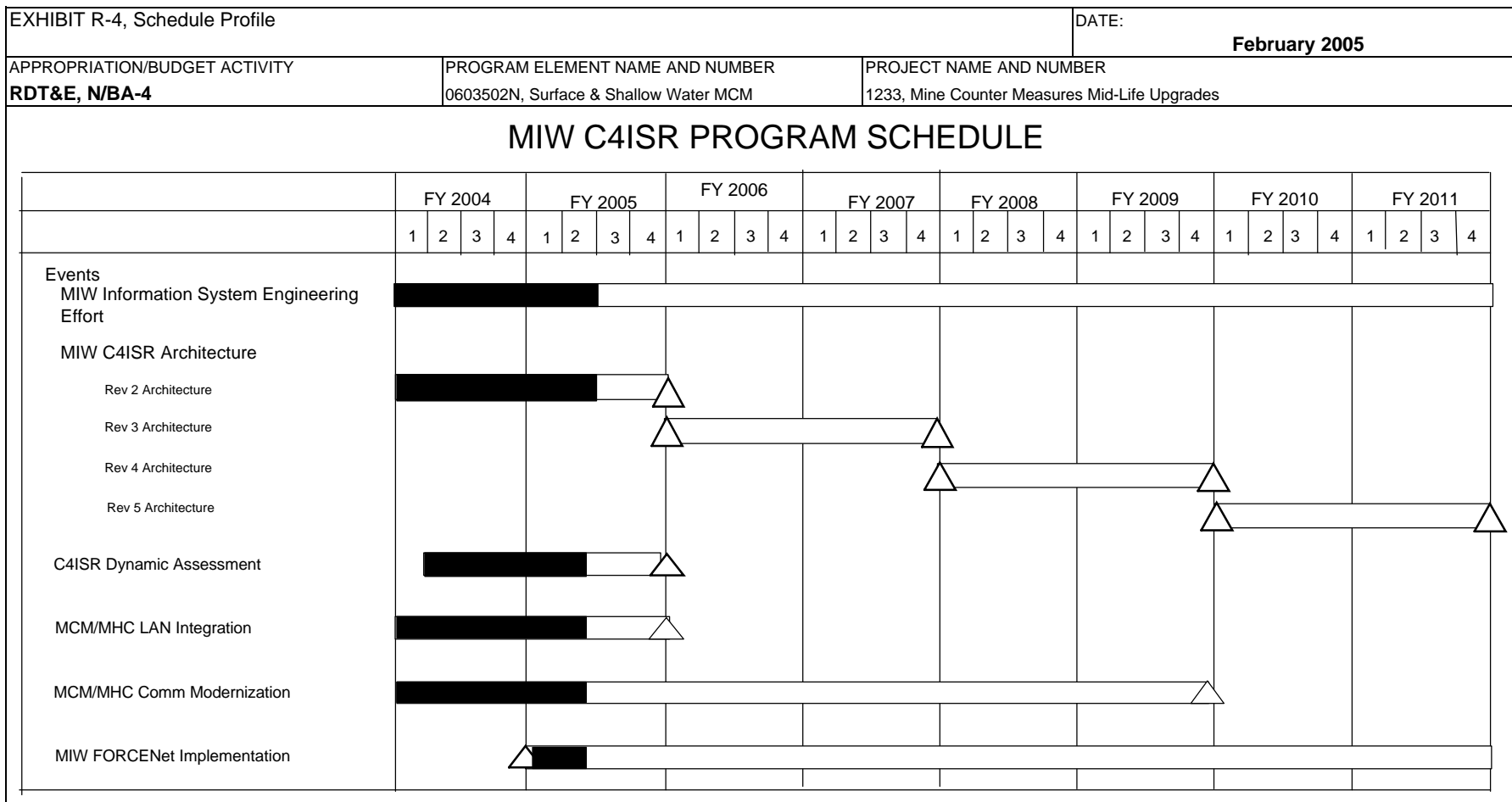
EXHIBIT R-4, Schedule Profile																DATE:				February 2005																			
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																							
RDT&E, N/BA-4								0603502N, Surface & Shallow Water MCM								Battle Space Profiler																							
BSP PROGRAM SCHEDULE																																							
								FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
								1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
HW/SW Design and Development																																							
Preliminary Design Review																																							
Critical Design Review																																							
Env., Shock, & Safety Testing																																							
EDM Installation & C/O																																							

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

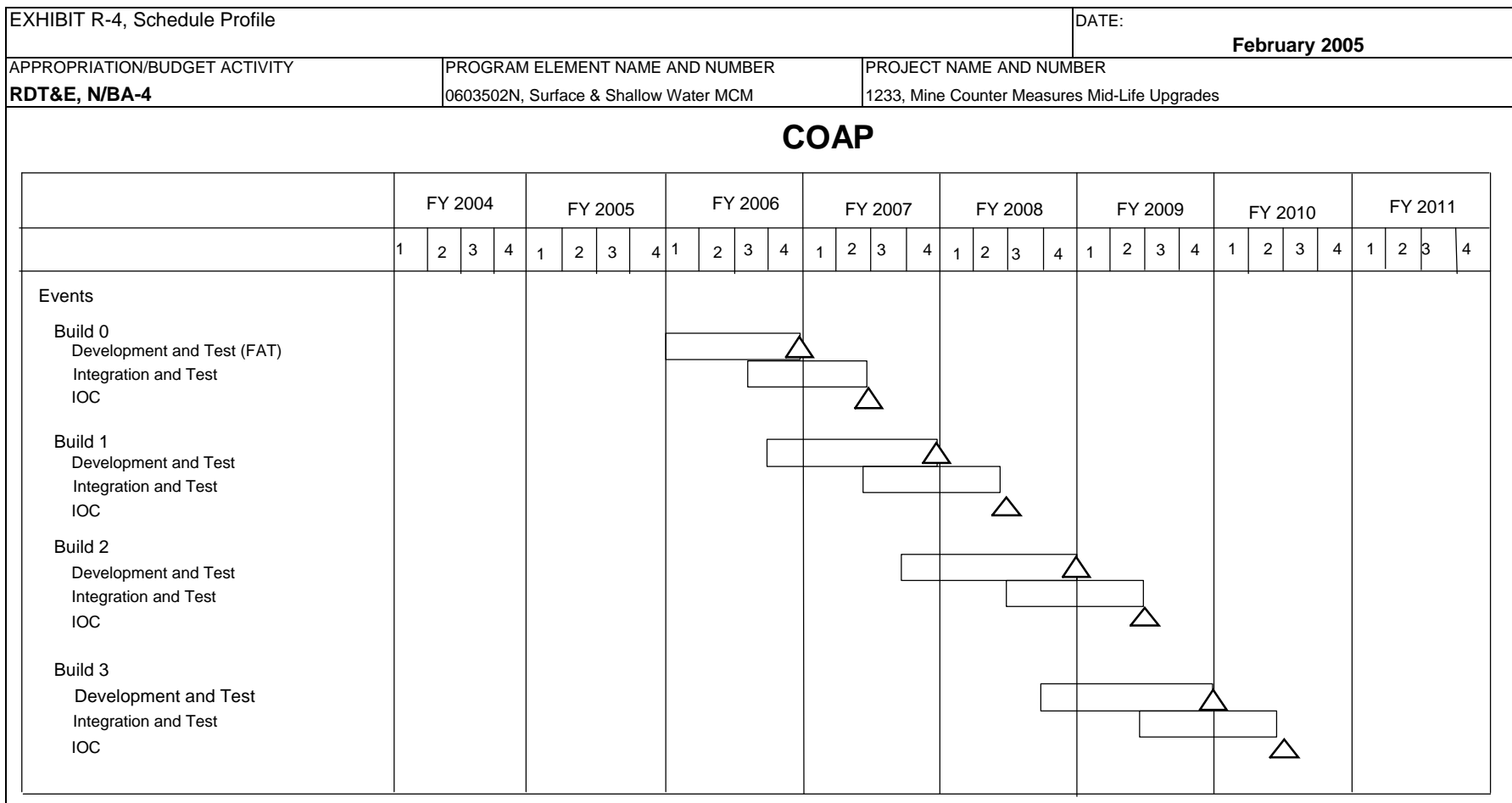


R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																		DATE:										February 2005																											
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																																							
RDT&E, N/BA-4								0603502N, Surface & Shallow Water MCM								1233, Mine Counter Measures Mid-Life Upgrades																																							
COAP (Continued)																																																							
								FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011																			
								1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																				
Events																																																							
Build 4																																																							
Development and Test																																																							
Integration and Test																																																							
IOC																																																							
Build 5																																																							
Development and Test																																																							
Integration and Test																																																							

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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																				DATE: February 2005												
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N/BA-4					PROGRAM ELEMENT NAME AND NUMBER 0603502N, Surface & Shallow Water MCM										PROJECT NAME AND NUMBER 1233, Mine Counter Measures Mid-Life Upgrades																	
GCCS-M 4.x for MCM PROGRAM SCHEDULE																																
	FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
Events	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Development and Integration of GCCS-M 4.x hardware:																																
M-class ships																																
Expeditionary units																																

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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																		DATE:														
February 2005																																
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT								R-1 ITEM NOMENCLATURE																
RDT& E, N/BA-5								0603502N, Surface and Shallow Water MCM								1233, Mine Counter Measures Mid-Life Upgrades																
E. Schedule Profile																																
HFWB SONAR IMPROVEMENT PROGRAM SCHEDULE																																
	FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Events																																
Design & Fabrication																																
Integration Contractor Award																																
Tow Cable Integration																																
In-water Component Tests																																
Component EQT Tests																																
Ship Integration and At-sea Test																																

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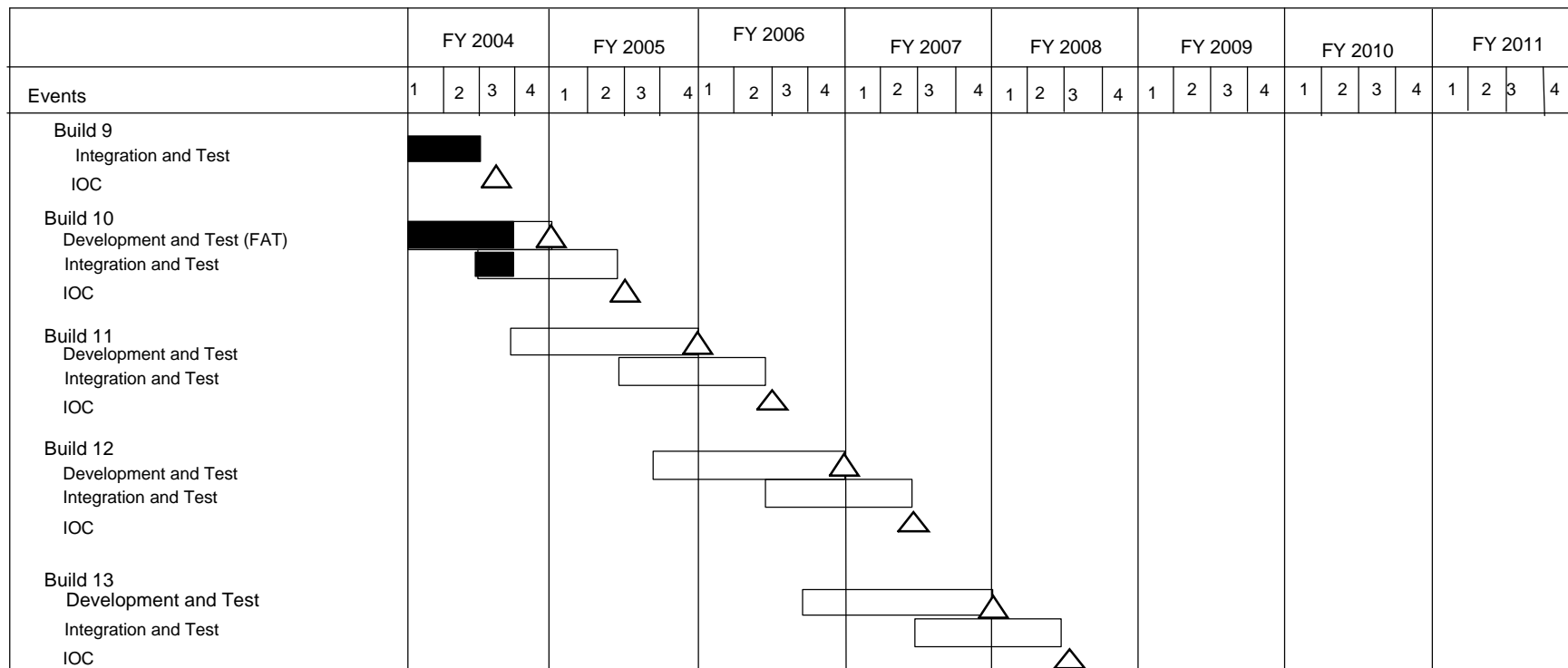
Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 33 of 94)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile			DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NAME AND NUMBER		PROJECT NAME AND NUMBER	
RDT&E, N/BA-4		0603502N, Surface & Shallow Water MCM		1233, Mine Counter Measures Mid-Life Upgrades	

MEDAL PROGRAM SCHEDULE



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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																	DATE:							February 2005												
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																							
RDT&E, N/BA-4					0603502N, Surface & Shallow Water MCM								1233, Mine Counter Measures Mid-Life Upgrades																							
MEDAL PROGRAM SCHEDULE CONT'D																																				
					FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Events																																				
Build 14																																				
Development and Test																																				
Integration and Test																																				
IOC																																				
Build 15																																				
Development and Test																																				
Integration and Test																																				
IOC																																				
Build 16																																				
Development and Test																																				
Integration and Test																																				
IOC																																				
Build 17																																				
Development and Test																																				
Integration and Test																																				

R-1 SHOPPING LIST - Item No. 36

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:


EXHIBIT R-4, Schedule Profile																DATE:				February 2005												
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																			
RDT&E, N/BA-4					0603502N, Surface & Shallow Water MCM								1233, Mine Counter Measures Mid-Life Upgrades																			
USV PROGRAM SCHEDULE																																
	FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
USV Contract Award																																
SDD Phase																																
CT/DT																																
OT																																
LRIP Decision/Milestone C																																
LRIP Production																																
Full Rate Production Decision																																

R-1 SHOPPING LIST - Item No. 36

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																				DATE: February 2005												
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4										PROGRAM ELEMENT NAME AND NUMBER 0603502N, Surface & Shallow Water MCM										PROJECT NAME AND NUMBER 1233, Mine Counter Measures Mid-Life Upgrades												
ICWS PROGRAM SCHEDULE																																
	FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Events																																
Ship board test Dockside/at-sea																																

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

[illegible]

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Exhibit R-2, RDTEN Budget Item Justification

(Exhibit R-2, page 38 of 94)

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CLASSIFICATION:

[illegible]

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 39 of 94)

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CLASSIFICATION:

[illegible]

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 40 of 94)

UNCLASSIFIED

CLASSIFICATION:

[illegible]

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UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 41 of 94)

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 42 of 94)

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 43 of 94)

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No.

36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 44 of 94)

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No.

36

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 45 of 94)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-4	Surface & Shallow Water MCM, 0603502N					Unmanned Undersea Vehicle 2094/2852					
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Project Cost	238.167	62.799	59.965	54.633	52.176	74.707	165.358	157.816	154.912	Continuing	Continuing
RDT&E Articles Qty			1	1							2

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The November 2004 UUV Master Plan establishes Intelligence, Surveillance, and Reconnaissance (ISR) as the Navy's top UUV priority. The second priority is to provide a clandestine, mine reconnaissance capability and Anti-Submarine Warfare is priority three.

The UUV project funds development of the UUV Program Plan. The AN/BLQ-11 Long-Term Mine Reconnaissance System (LMRS) was being developed to provide a robust, long-term Fleet capability to conduct clandestine minefield reconnaissance. The Navy was developing a Mission Reconfigurable UUV (MRUUV) system that was capable of performing different missions to conduct surveillance, intelligent and tactical oceanography. The LMRS Engineering Development Model (EDM) will be completed to mature and test critical technology for follow-on UUVs. The LMRS EDM may be used for fleet conops development and experimentation. The Advanced Development UUV (ADUUV) development will continue to mature and test critical modular UUV design technology for follow-on UUV programs. The UUV program will continue to mature key UUV technologies and sonar sensors as risk reduction for follow-on UUV programs. Planning has begun for a new acquisition program to develop a modular, reconfigurable 21" MRUUV to support contract award in FY06. The first payload developed by this program will support the MCM mission. Other modular payload developments will be initiated beginning in FY09. An AOA for the Large Displacement (LD) MRUUV was completed in FY04. The Office of Naval Research will develop technologies for payload sensors and increased autonomy to support risk mitigation for the UUV program. Technologies from these systems will transition to UUV during the FNC demonstration year. Technology Transition agreements between the Program office and ONR have been signed.

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 46 of 94)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME Surface & Shallow Water MCM, 0603502N	PROJECT NUMBER AND NAME Unmanned Undersea Vehicle 2094/2852																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">LMRS</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>34.326</td> <td>18.964</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td>1</td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; height: 60px; margin-top: 10px; padding: 5px;"> <p>Complete development and fabrication of prototype LMRS system, prototype testing and conduct TECHEVAL.</p> </div>					LMRS	FY 04	FY 05	FY 06	FY07	Accomplishments/Effort/Subtotal Cost	34.326	18.964	0.000	0.000	RDT&E Articles Quantity		1		
LMRS	FY 04	FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost	34.326	18.964	0.000	0.000															
RDT&E Articles Quantity		1																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">ADUUV</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>16.882</td> <td>19.931</td> <td>8.600</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td>1</td> <td></td> </tr> </table> <div style="border: 1px solid black; height: 60px; margin-top: 10px; padding: 5px;"> <p>Complete development of an Advanced Development Unmanned Undersea Vehicle (ADUUV) and modification of Forward Look Sonar (FLS) for 21" MRUUV risk reduction.</p> </div>					ADUUV	FY 04	FY 05	FY 06	FY07	Accomplishments/Effort/Subtotal Cost	16.882	19.931	8.600	0.000	RDT&E Articles Quantity			1	
ADUUV	FY 04	FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost	16.882	19.931	8.600	0.000															
RDT&E Articles Quantity			1																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">LMRS P3I</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>7.391</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; height: 60px; margin-top: 10px; padding: 5px;"> <p>Funded engineering studies and technology integration development of LMRS P3I. Sensor technology will be used for risk reduction for the 21" MRUUV.</p> </div>					LMRS P3I	FY 04	FY 05	FY 06	FY07	Accomplishments/Effort/Subtotal Cost	7.391	0.000	0.000	0.000	RDT&E Articles Quantity				
LMRS P3I	FY 04	FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost	7.391	0.000	0.000	0.000															
RDT&E Articles Quantity																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME Surface & Shallow Water MCM, 0603502N	PROJECT NUMBER AND NAME Unmanned Undersea Vehicle 2094/2852																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">UUV Sensor Risk Reduction</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>4.200</td> <td>5.220</td> <td>5.580</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>					UUV Sensor Risk Reduction	FY 04	FY 05	FY 06	FY07	Accomplishments/Effort/Subtotal Cost	4.200	5.220	5.580	0.000	RDT&E Articles Quantity				
UUV Sensor Risk Reduction	FY 04	FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost	4.200	5.220	5.580	0.000															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">21" Reconfigurable UUV Risk Reduction</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>15.850</td> <td>23.574</td> <td>0</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>					21" Reconfigurable UUV Risk Reduction	FY 04	FY 05	FY 06	FY07	Accomplishments/Effort/Subtotal Cost	0.000	15.850	23.574	0	RDT&E Articles Quantity				
21" Reconfigurable UUV Risk Reduction	FY 04	FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost	0.000	15.850	23.574	0															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">21" Reconfigurable UUV</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>16.879</td> <td>52.176</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>					21" Reconfigurable UUV	FY 04	FY 05	FY 06	FY07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	16.879	52.176	RDT&E Articles Quantity				
21" Reconfigurable UUV	FY 04	FY 05	FY 06	FY07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	16.879	52.176															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">TOTAL</td> <td style="width: 15%;">62.799</td> <td style="width: 15%;">59.965</td> <td style="width: 15%;">54.633</td> <td style="width: 15%;">52.176</td> </tr> </table>					TOTAL	62.799	59.965	54.633	52.176										
TOTAL	62.799	59.965	54.633	52.176															

R-1 SHOPPING LIST - Item No.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:		February 2005																			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME																							
RDT&E, N / BA-4		Surface & Shallow Water MCM, 0603502N		Unmanned Undersea Vehicle 2094/2852																							
<p>(U) D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th style="text-align: right;"><u>FY 2004</u></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> <th style="text-align: right;"><u>FY 2008</u></th> <th style="text-align: right;"><u>FY 2009</u></th> <th style="text-align: right;"><u>FY 2010</u></th> <th style="text-align: right;"><u>FY 2011</u></th> </tr> </thead> <tbody> <tr> <td>2171/OPN</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">94.619</td> </tr> </tbody> </table>										<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	2171/OPN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	94.619
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>																			
2171/OPN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	94.619																			
<p>(U) E. ACQUISITION STRATEGY:</p> <p>The LMRS acquisition strategy was structured to maximize competition during system development. In FY97 three one year contracts were awarded for development of preliminary design. In early FY98, two of the preliminary design contractors were selected to continue development through a critical design review. Selection of these two contractors was based primarily on the contractor's performance during the preliminary design contract. In early FY00, Boeing was selected to complete the LMRS design, fabricate a prototype system and support in-water testing. The LMRS Engineering Development Model will be used to mature and test UUV technology and for fleet conops development. The Advanced Development UUV (ADUUV) will be completed to mature and test critical modular UUV design technology that will be used for follow-on UUVs. A new acquisition program to develop a modular, reconfigurable 21" MRUUV will be initiated with a competitively awarded contract planned for FY06.</p>																											

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
RDT&E, N / BA-4			Surface & Shallow Water MCM, 0603502N			Unmanned Undersea Vehicle 2094/2852							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY07 Costs	FY07 Award Date		
LMRS	CPAF/IF	Boeing	86.849	21.029	N/A	8.340	N/A						
Fees			9.553	0.000	N/A		N/A						
LMRS	Various	Various	45.533	4.955	N/A	4.293	N/A						
ADUUV	CPIF	Lockheed Martin	6.750	10.494	N/A	11.084	N/A	5.000					
ADUUV	Various	Various	10.485	4.388		2.532		1.500					
UUV P3I	Various	Various	31.103	6.280	N/A								
UUV Sensor Risk Reduction	Various	Various	0.000	4.200	N/A	5.220	N/A	5.580	N/A				
21" Reconfigurable UUV Risk Reduction	Various	Various	0.000	0.000	N/A	15.850	N/A	17.010					
21" Reconfigurable UUV	Various	Various	0.000					10.416	TBD	31.874	N/A		
LD MRUUV Risk Reduction	Various	Various	0.000										
UUV Test center	Various	Various	7.502										
Subtotal Product Development			197.775	51.346		47.319		39.506		31.874			
Remarks:													
Development Support													
Software Development													
Integrated Logistics Support													
Configuration Management													
Technical Data													
Studies & Analyses													
GFE													
Award Fees													
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000		
Remarks:													

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT Surface & Shallow Water MCM, 0603502N			PROJECT NUMBER AND NAME Unmanned Undersea Vehicle 2094/2852						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY07 Costs	FY07 Award Dare	
Developmental Test & Evaluation	Various	Various	2.731	3.247	N/A	1.758	N/A		N/A		N/A	
Operational Test & Evaluation	WR	Various	0.000		N/A		N/A		N/A		N/A	
GFE/GFI	Various	Various	0.644		N/A		N/A	2.000	TBD	7.000	N/A	
TTLRF	WR	Various	6.282	0.799	N/A		N/A		N/A		N/A	
Award Fees												
Subtotal T&E			9.657	4.046		1.758		2.000		7.000		
Remarks:												
Contractor Engineering Support			5.024	1.000	N/A	1.500	N/A	1.750	N/A	2.000	N/A	
Government Engineering Support			20.507	3.612	N/A	3.783	N/A	3.500	N/A	3.750	N/A	
Program Management Support			5.204	2.795	N/A	5.605	N/A	7.877	N/A	7.552	N/A	
Subtotal Management			30.735	7.407		10.888		13.127		13.302		
Remarks:												
Total Cost			238.167	62.799		59.965		54.633		52.176		

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 51 of 94)

VIRGINIA CLASS FOT&E |

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																	DATE:				February 2005															
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME																					
RDT&E, N /					Surface & Shallow Water MCM, 0603502N										Unmanned Undersea Vehicle 2094/2852																					
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Complete LMRS Baseline	<div></div>																																			
			<div></div>		<div></div>			<div></div>																												
			DVT/DVTIIA		DT IIB			TECHEVAL/OA																												
ADUUV Development	<div></div>																																			
Sensor Risk Reduction	<div></div>																																			
21" Vehicle / Launch and Recovery Risk Reduction					21" Vehicle (short-term)																															
Competition Planning/Execution																																				
21" Vehicle Development Contract																																				

R-1 SHOPPING LIST - Item No. 36

* Not required for Budget Activities 1, 2, 3, and 6

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[illegible]

R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 53 of 94)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM				PROJECT NUMBER AND NAME 2131, Assault Breaching Systems					
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Project Cost	187.561	2.932	26.808	29.215	37.530	36.551	35.897	31.246	30.446	Continuing	Continuing
RDT&E Articles Qty											0
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>This program provides for a combination of joint US Marine Corps and US Navy projects planned to counter the threat to amphibious landing forces from known and projected foreign land/sea mines and obstacles in the beach zone and surf zone approaches to amphibious assault areas. It develops a system of systems (Countermine/Counter Obstacle, Intelligence/Surveillance/Reconnaissance/Targeting (ISR/T), Navigation/Virtual Marking/Integration, C4I/Data Fusion) to provide a full assault breaching capability. Funding in FY 2004 is a Congressional Plus-Up for Venom Penetrator (part of the Counter mine demonstration). The ABS System of Systems (SoS) will obtain a Milestone B decision in early FY06.</p> <p>The Counter Mine (CM) system will transition from a 6.3 S&T Concept Demonstration effort to a 6.4 development program after a concept decision/AoA in FY05. Three 6.3 S&T concepts will demonstrate the countermine technology by the beginning of FY05. A concept/decision/AoA will occur in FY05 and one of the concepts or a combination of the technologies will be chosen to move into the 6.4 development phase as the CM System (far-term). The CM Milestone B will occur in FY06 with a contract award to follow.</p> <p>A near-term Counter Mine/Counter Obstacle (CMCO) system is also being characterized at the 6.3 S&T level to be used in the Fleet as an interim CM/CO capability until the "Far-Term" CM system is developed. This near-term system (JDAM Assault Breaching System - JABS) consists of in-service MK 84 general purpose bombs with a JDAM (Joint Directed Attack Munition) tail kit. This system is already being used in the fleet, however it is being characterized for a limited assault breaching mission. Some Follow-On-Test and Evaluation (FOT&E), risk mitigation, logistics, and operational readiness concerns need to be addressed for the ABS mission with ABS funding.</p> <p>The ISR/T capability is being provided by the Coastal Battlefield Reconnaissance & Analysis (COBRA) system. This program will transition from the Marine Corps to the Navy program office at the beginning of FY05. COBRA consists of three block capabilities which will all be integrated into the Fire Scout UAV as LCS Mission Modules. Block I capability is to detect surface laid mine lines on the beach (daytime) using Multi-spectral imaging. Block II will incorporate Infrared technology which will transition from 6.3 S&T to detect surface laid mine lines in the surf zone (day and night). Block III will transition technology from 6.3 S&T to detect buried mine lines. COBRA Block I/II milestone B is scheduled to occur in FY05.</p> <p>The navigation effort involves requirements development and program planning to choose the navigational upgrades for the Landing Craft, Air Cushion (LCAC) and Landing Craft, Utility (LCU) to enable the craft to safely navigate the neutralized assault lanes. OP,N will fund the CRAFTALTS to upgrade the navigation systems.</p> <p>After the assault lane has been neutralized, virtual or physical marking systems need to be developed to mark where the lane has been cleared and guide the assault craft through the lane.</p> <p>Command, Control, Computers, Communications and Intelligence (C4I) will tie all of the above systems together under an integrated ABS architecture and also tie in with the integrated Mine Warfare architecture.</p>											

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 54 of 94)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 2131, Assault Breaching Systems																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Product Development</th> <th style="width: 15%;">FY04</th> <th style="width: 15%;">FY05</th> <th style="width: 15%;">FY06</th> <th style="width: 15%;">FY07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: right;">0.651</td> <td style="text-align: right;">11.425</td> <td style="text-align: right;">18.759</td> <td style="text-align: right;">29.423</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Product Development	FY04	FY05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	0.651	11.425	18.759	29.423	RDT&E Articles Quantity				
Product Development	FY04	FY05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	0.651	11.425	18.759	29.423															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> Product Development: Venom Penetrator. Far term technology maturity (Counter mine), ISR/Targeting Development (COBRA), Government Furnished Equipment (GFE): Mine Threat Acquisition for R&D Development and Testing, DDGPS Development (Marking). Counter Mine System Development Contract beginning in FY06. </div>																			
<p>* Associated FY04 funding is in 0603782N for all items except Venom Penetrator.</p>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Support</th> <th style="width: 15%;">FY04</th> <th style="width: 15%;">FY05</th> <th style="width: 15%;">FY06</th> <th style="width: 15%;">FY07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: right;">1.595</td> <td style="text-align: right;">1.052</td> <td style="text-align: right;">1.125</td> <td style="text-align: right;">0.157</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Support	FY04	FY05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	1.595	1.052	1.125	0.157	RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost	1.595	1.052	1.125	0.157															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> Support: Venom Penetrator. Mine Burial Effects/Mine Case/TNT Studies in support of requirements development, Fuze Vulnerability Studies. Tactical Decision Aid Development, Modeling and Simulation in support of Far-Term Development. ABS Scalability study. </div>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 2131, Assault Breaching Systems																	
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Test and Evaluation	FY04	FY05	FY06	FY07															
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Test and Evaluation: Venom Penetrator. Near Term (JABS) Risk Mitigation Testing; Commander Operational Test & Evaluation Forces Test Support. </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Management</th> <th style="width: 15%;">FY04</th> <th style="width: 15%;">FY05*</th> <th style="width: 15%;">FY06</th> <th style="width: 15%;">FY07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: right;">0.527</td> <td style="text-align: right;">14.000</td> <td style="text-align: right;">6.466</td> <td style="text-align: right;">7.780</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Management	FY04	FY05*	FY06	FY07	Accomplishments/Effort/Subtotal Cost	0.527	14.000	6.466	7.780	RDT&E Articles Quantity				
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Management: Venom Penetrator. Program management support, In-house contractor support (CACI, COMOPTEVFOR, and Northrop Grumman). Technical Direction Agent/Design Agent (TDA/DA) Engineering Support of Mission Area Analysis, Analysis of Alternatives, Milestone B preparation, contract and acquisition documentation, Requirements Generation - Initial Capabilities Document (ICD), Capability Development Documents (CDD), Capability Production Documents (CPD), Analysis of Material approvals and Functional needs analysis/functional solutions analysis, Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion. </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Total</td> <td style="width: 15%; text-align: right;">2.932</td> <td style="width: 15%; text-align: right;">26.808</td> <td style="width: 15%; text-align: right;">29.215</td> <td style="width: 15%; text-align: right;">37.530</td> </tr> </table>					Total	2.932	26.808	29.215	37.530										
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005																																					
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<p>(U) D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. & Name</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2004</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2005</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2006</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2007</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2008</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2009</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2010</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2011</th> <th style="text-align: right; border-bottom: 1px solid black;">To Complete</th> <th style="text-align: right; border-bottom: 1px solid black;">Total Cost</th> </tr> </thead> <tbody> <tr> <td>2624 / OPN</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">2.277</td> <td style="text-align: right;">8.325</td> <td style="text-align: right;">9.091</td> <td style="text-align: right;">14.759</td> <td style="text-align: right;">14.066</td> <td style="text-align: right;">18.143</td> <td style="text-align: right;">Continuing</td> <td style="text-align: right;">Continuing</td> </tr> <tr> <td>0603782N Shallow Water MCM Demos</td> <td style="text-align: right;">12.0*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>*\$12M is ABS specific. Funding exists across the FYDP in this PE for other mine warfare efforts.</p> <p>(U) E. ACQUISITION STRATEGY:</p> <p>The FY04 and FY05 Initial Capabilities Document (ICD) and Capability Development Documents (CDD) tasks specifically complete the requirements generation process for the overarching mission area of Amphibious Operations in a Mined Environment leading to a MS B decision during FY06. The Functional Area Analysis (FAA) will provide the foundation for the "system of systems ICD/CDD required for Amphibious Operations in a Mined Environment. The FY04 and FY05 tasks will also allow the Navy to demonstrate the viability of concepts for Far Term System of Systems capabilities and justify the need for future funding. The FY04 funding was crucial to maintaining the inventory of threat mines that will be required for future mine lethality and vulnerability tests. The FY04 and FY05 tasks will develop ISR/Targeting systems and Navigation systems to support the Assault Breaching Mission. Milestone B for Countermine system development will occur in FY06 followed by a development contract award for the Countermine system development in FY06. Development of Block I COBRA(ISR/T) will continue into FY06 to prepare for a delivery of a Block I system for LCS Flight 0. FY06 funding will begin development of the COBRA Block II system to detect mine lines in the Surf Zone. The OPN in FY06 will go toward funding Navigational upgrades to the LCAC and LCU craft for more accurate navigation through the surf zone. FY07 OPN will also continue the Navigation upgrades to the LCAC and LCU as well as procure Block I COBRA systems for LCS Mission Modules.</p>											Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost	2624 / OPN	0.000	0.000	2.277	8.325	9.091	14.759	14.066	18.143	Continuing	Continuing	0603782N Shallow Water MCM Demos	12.0*									
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost																																	
2624 / OPN	0.000	0.000	2.277	8.325	9.091	14.759	14.066	18.143	Continuing	Continuing																																	
0603782N Shallow Water MCM Demos	12.0*																																										

R-1 SHOPPING LIST - Item No. 36

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005							
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603502N, Surface and Shallow Water MCM			2131, Assault Breaching Systems									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	WX	IH, NSWC:PC, TBD	54.554	0.651	11/03	11.425	11/04	18.759	02/06	29.423	02/07	Continuing	Continuing	N/A	
Ancillary Hardware Development	WX	IH, NSWC:PC, TBD	8.100									0.000	8.100	N/A	
Aircraft Integration													0.000		
Ship Integration													0.000		
Ship Suitability													0.000		
Systems Engineering	WX	IH, NSWC:PC	17.033									Continuing	Continuing	N/A	
Training Development	WX	IH, NSWC:PC	2.000										2.000	N/A	
Tooling	WX	IH, NSWC:PC, TBD	0.860										0.860	N/A	
GFE	WX	IH, NSWC:PC	4.700			0.000						Continuing	Continuing	N/A	
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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 58 of 94)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-??			0603502N, Surface and Shallow Water MCM			2131, Assault Breaching Systems									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Development Support Equipment	WX	IH, NSWC:PC, TBD	11.721			0.000		0.725	11/05	0.057	11/06	Continuing	Continuing	N/A	
Software Development	WX	NSWC:PC	8.037										8.037	N/A	
Integrated Logistics Support	WX	IH, NSWC:PC	2.712										2.712	N/A	
Configuration Management	WX	IH, NSWC:PC	3.744										3.744	N/A	
Technical Data	WX	IH, NSWC:PC	2.588										2.588	N/A	
Studies & Analysis	WX	IH, NSWC:PC	0.992	1.595	01/03	1.052	11/04	0.400	11/05	0.100	11/06	Continuing	Continuing		
GFE	WX	IH, NSWC:PC	0.400										0.400	N/A	
Award Fees													0.000		
													0.000		
													0.000		
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Subtotal Support			30.194	1.595		1.052		1.125		0.157		0.000	34.123		
Remarks:															

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 2131, Assault Breaching Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX, PD	IH, NSWC:PC TBD	26.263	0.159	01/03	0.331	11/04	2.865	11/05	0.170	11/06	Continuing	Continuing	N/A
Operational Test & Evaluation	WR	IH, NSWC:PC TBD	8.655										8.655	N/A
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling	WX	IH, NSWC:PC TBD	0.700										0.700	N/A
GFE	WX	IH, NSWC:PC TBD	0.400										0.400	N/A
Award Fees													0.000	
Subtotal T&E			36.018	0.159		0.331		2.865		0.170		0.000	39.713	
Remarks:														
Contractor Engineering Support	CPFF	CACI, Northrup Grumman	3.089			0.750	11/04	0.522	11/05	0.537	11/06	Continuing	Continuing	N/A
Government Engineering Support	WX	IH, NSWC:PC	18.737	0.316	1/04	1.891	11/04	1.835	11/05	1.950	11/06	Continuing	Continuing	N/A
Program Management Support	WX	IH, NSWC:PC, NAVSEA	11.326	0.211	1/04	1.784	11/04	4.034	11/05	5.218	11/06	Continuing	Continuing	N/A
Travel	PD	NAVSEA	0.877			0.075	11/04	0.075	11/05	0.075	11/06	Continuing	Continuing	N/A
Transportation													0.000	
Assessment*	Various	Various	0.073			9.500							9.573	N/A
Subtotal Management			34.102	0.527		14.000		6.466		7.780		0.000	70.655	
Remarks:														
Total Cost			187.561	2.932		26.808		29.215		37.530		0.000	284.046	

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Exhibit R-2, RDTEN Budget Item Justification
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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE:				February 2005												
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																				
RDT&E, N/BA-4				0603502N, Surface & Shallow Water MCM								2131, Assault Breaching Systems																				
ABS PROGRAM SCHEDULE																																
	FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Milestones																																
ONR 6.3 Demo Efforts																																
CMCO Acquisition/Development 6.4																																
CMCO System Design and Test																																
CMCO Technical Reviews																																
ISR/Navigation/C4I Development																																

R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 61 of 94)

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CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 36

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 62 of 94)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM					PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System					
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Project Cost	0.000	0.000	2.155	11.506	14.030	0.000	0.000	0.000	0.000	0.000	27.691
RDT&E Articles Qty											0

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Expendable Mine Neutralization System (EMNS) is a replacement to the existing AN/SLQ-48 Mine Neutralization System (MNS). The current program replaces the MNS with EMNS on the 14 MCM Avenger Class Ships. EMNS will leverage off of on-going efforts in the Airborne Mine Countermeasures Program to develop an Airborne Mine Neutralization System (AMNS).

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 63 of 94)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System															
(U) B. Accomplishments/Planned Program																	
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="padding: 5px;">Product Development</th><th style="padding: 5px;">FY 04</th><th style="padding: 5px;">FY 05</th><th style="padding: 5px;">FY 06</th><th style="padding: 5px;">FY 07</th></tr></thead><tbody><tr><td style="padding: 5px;">Accomplishments/Effort/Subtotal Cost</td><td style="padding: 5px; text-align: center;">0.000</td><td style="padding: 5px; text-align: center;">1.533</td><td style="padding: 5px; text-align: center;">9.326</td><td style="padding: 5px; text-align: center;">4.730</td></tr><tr><td style="padding: 5px;">RDT&E Articles Quantity</td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"><p>Product Development: Award Development Contract for Expendable Mine Neutralization System (EMNS) developer. Initiate hardware design and development. Modify software for use on an MCM class ship. Integrate EMNS Engineering Development Model (EDM) aboard MCM-1 Class Ship.</p></div>			Product Development	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	1.533	9.326	4.730	RDT&E Articles Quantity				
Product Development	FY 04	FY 05	FY 06	FY 07													
Accomplishments/Effort/Subtotal Cost	0.000	1.533	9.326	4.730													
RDT&E Articles Quantity																	
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="padding: 5px;">Support</th><th style="padding: 5px;">FY 04</th><th style="padding: 5px;">FY 05</th><th style="padding: 5px;">FY 06</th><th style="padding: 5px;">FY 07</th></tr></thead><tbody><tr><td style="padding: 5px;">Accomplishments/Effort/Subtotal Cost</td><td style="padding: 5px; text-align: center;">0.000</td><td style="padding: 5px; text-align: center;">0.092</td><td style="padding: 5px; text-align: center;">1.000</td><td style="padding: 5px; text-align: center;">0.900</td></tr><tr><td style="padding: 5px;">RDT&E Articles Quantity</td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td><td style="padding: 5px;"></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"><p>Support: Develop logistics products, including training materials and interactive technical manual.</p></div>			Support	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.092	1.000	0.900	RDT&E Articles Quantity				
Support	FY 04	FY 05	FY 06	FY 07													
Accomplishments/Effort/Subtotal Cost	0.000	0.092	1.000	0.900													
RDT&E Articles Quantity																	

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System		
(U) B. Accomplishments/Planned Program				
Test and Evaluation	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.100	0.750	7.970
RDT&E Articles Quantity				
Test and Evaluation: EMNS developmental testing including environmental and shock testing, safety testing, developmental and operational testing. Develop Test and Evaluation Master Plan (TEMP) and test reports.				
Management	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.430	0.430	0.430
RDT&E Articles Quantity				
Management: Provide program management support and travel for EMNS.				
Total	0.000	2.155	11.506	14.030

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System					
(U) D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
2622 / OPN										
EMNS	0.000	0.000	0.000	0.000	14.534	13.933	15.019	12.499	Continuing	55.985
4225 / WPN	0.000	0.000	0.000	0.000	0.000	0.000	3.735	6.157	Continuing	9.892
Total	0.000	0.000	0.000	0.000	14.534	13.933	18.754	18.656	0.000	65.877
 (U) E. ACQUISITION STRATEGY:										
<p>The Airborne Mine Countermeasures Program is developing two Airborne Mine Neutralization variants for the H-53 and H-60 helicopters. Based on Surface Ship requirements, one of these two variants will be selected for use on the MCM Avenger Class Ships. The acquisition strategy will be to either compete between the two alternatives, or select the one that best meets fleet requirements.</p>										

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Remarks:

R-1 SHOPPING LIST - Item No. 36

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 67 of 94)

UNCLASSIFIED

Remarks:

R-1 SHOPPING LIST - Item No. 36

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 68 of 94)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 4025, Expendable Mine Neutralization System								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Develop TEMP	WX	NSWC, Panama City, FL				0.100	10/04	0.100	10/05				0.200	N/A
Environmental and Shock Testing	WX	NSWC, Panama City, FL						0.350	10/05	0.500	10/06		0.850	N/A
CT/DT/OT	CPIF	TBD						0.100	10/05	1.470	10/06		1.570	N/A
CT/DT/OT	WX	NSWC, Panama City, FL								4.500	10/06		4.500	
Safety Testing	WX	NSWC, Panama City, FL						0.200	10/05	1.500	10/06		1.700	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.100		0.750		7.970		0.000	8.820	
Remarks:														
Program Mangement Support	CPFF	CACI	0.000	0.000		0.150	10/04	0.150	10/05	0.150	10/06		0.450	N/A
Travel	Various	NAVSEA	0.000	0.000		0.050	10/04	0.050	10/05	0.050	10/06		0.150	N/A
Government Engineering Support	WX	NSWC, Panama City, FL				0.230	10/04	0.230	10/05	0.230	10/06		0.690	N/A
													0.000	N/A
													0.000	N/A
													0.000	
Subtotal Management			0.000	0.000		0.430		0.430		0.430		0.000	1.290	
Remarks:														
Total Cost			0.000	0.000		2.155		11.506		14.030		0.000	27.691	
Remarks:														

R-1 SHOPPING LIST - Item No. 36

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile						DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER			
RDTE&E, N/BA-4				0603502N, Surface & Shallow Water MCM				4025, Expendable Mine Neutralization System			

EMNS PROGRAM SCHEDULE

	FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contract Award								△																								
HW/SW Design and Development																																
Preliminary Design Review																																
Critical Design Review																																
Contractor Testing																																
Development Testing																																
EMD Install / Checkout																																
TECHEVAL/OPEVAL																																
Milestone C																																

R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RDTEEN Budget Item Justification
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CLASSIFICATION:

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 71 of 94)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM				PROJECT NUMBER AND NAME 3102 Low Frequency Broadband					
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Project Cost	0.000	0.000	0.000	9.850	15.470	18.132	23.895	10.552	14.902	Continuing	Continuing
RDT&E Articles Qty											
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>Low Frequency Broadband (LFBB) is a development program for providing Low-frequency, broadband (LFBB) sensor and processor payload for an unmanned, underwater vehicle (UUV). The project provides a needed capability for detection of buried mines and identification of mines by a combination of imaging and non-imaging signal processing technologies. This technology is being transitioned from Office of Naval Research projects, which have demonstrated the technology, but need to be transitioned into a system.</p>											

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UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 3102 Low Frequency Broadband																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;">Product Development</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">5.250</td><td style="text-align: center;">7.700</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>					Product Development	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	5.250	7.700	RDT&E Articles Quantity				
Product Development	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	5.250	7.700															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 150px; margin-top: 10px;">Product Development: Design and prototyping of critical technology components for demonstration and evaluation.</div>																			
 <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;">Support</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">2.600</td><td style="text-align: center;">4.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>					Support	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.600	4.000	RDT&E Articles Quantity				
Support	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	2.600	4.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 100px; margin-top: 10px;">Support: Develop critical item sensor processing and control software ILS.</div>																			

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM	PROJECT NUMBER AND NAME 3102 Low Frequency Broadband																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;">Test and Evaluation</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.550</td><td style="text-align: center;">1.800</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>					Test and Evaluation	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.550	1.800	RDT&E Articles Quantity				
Test and Evaluation	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.550	1.800															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 100px;">Test and Evaluation: Initiate development component testing.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;">Management</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.450</td><td style="text-align: center;">1.970</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>					Management	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.450	1.970	RDT&E Articles Quantity				
Management	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.450	1.970															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 100px;">Management: Provide program management support and travel for LFBB.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 30%;">Total</td><td style="width: 15%; text-align: center;">0.000</td><td style="width: 15%; text-align: center;">0.000</td><td style="width: 15%; text-align: center;">9.850</td><td style="width: 15%; text-align: center;">15.470</td></tr></table>					Total	0.000	0.000	9.850	15.470										
Total	0.000	0.000	9.850	15.470															

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 3102 Low Frequency Broadband				

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
0996 / OPN	0.000	0.000	0.000	0.000	0.000	0.000	45.569	45.610	Continuing	Continuing
Total	0.000	0.000	0.000	0.000	0.000	0.000	45.569	45.610	Continuing	Continuing

(U) E. ACQUISITION STRATEGY:

NSWC, Panama City FL and NRL will award a contract to address the critical technologies necessary for the development of the LFBB Sonar. Procurement is scheduled to start in FY10.

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[illegible]

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 77 of 94)

R-1 SHOPPING LIST - Item No. 36

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603502N, Surface and Shallow Water MCM			PROJECT NUMBER AND NAME 3102 Low Frequency Broadband								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NSWC:PC, NRL						0.550	11/05	1.800	11/06	Continuing	Continuing	N/A
													0.000	N/A
													0.000	N/A
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.000		0.550		1.800		0.000	2.350	
Remarks:														
Government Engineering Support	WX	NSWC, Panama, City, FL						0.650		1.150		Continuing	Continuing	N/A
Program Management Support	various	NAVSEA	0.000	0.000				0.525		0.545		Continuing	Continuing	N/A
Program Management Support	CPFF	CACI	0.000	0.000				0.200	11/05	0.200	11/06	Continuing	Continuing	N/A
Travel	PD	NAVSEA	0.000	0.000				0.075		0.075			0.075	N/A
													0.000	N/A
													0.000	
Subtotal Management			0.000	0.000		0.000		1.450		1.970		0.000	3.420	
Remarks:														
Total Cost			0.000	0.000		0.000		9.850		15.470		0.000	25.320	
Remarks:														

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE:				February 2005																							
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																											
RDT&E, N/BA-4								0603502N, Surface & Shallow Water MCM								3102 Low Frequency Broadband																											
LOW FREQUENCY BROADBAND PROGRAM SCHEDULE																																											
								FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011							
								1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
ADM Contract Award																△																											
Critical Technology Development																□																											
Demonstration / Validation																				□																							
EDM Design and Development																				□				□																			
PDR / CDR																				△				△																			
EDM Integration and Development Testing																												□															
TECHEVAL/OPEVAL																												□				△											
Milestone C																																□											
P3I																																				□							
LRIP (4)																																□											
Production (14)																																				□							

R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 79 of 94)

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R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 80 of 94)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM				PROJECT NUMBER AND NAME 3123 SMCM UUV					
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Project Cost	0.000	0.000	0.000	1.063	1.761	3.565	1.998	2.041	2.084	Continuing	Continuing
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) provides for development of Small Low Cost Unmanned Underwater Vehicles to support dedicated mine countermeasure operations. The UUV systems must have a small deployment footprint for rapid employment aboard various SMCM platforms. Equipment includes Launch Recovery Sub-Systems and associated systems support equipment.

*This effort was previously budgeted for in PE 0603654N, project 4024. The project was moved to 0603502N so that all of the UUV funding would fall into one R&D PE.

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface & Shallow Water MCM	PROJECT NUMBER AND NAME 3123 SMCM UUV																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">SMCM UUV</td> <td style="width: 12.5%;">FY 04</td> <td style="width: 12.5%;">FY 05</td> <td style="width: 12.5%;">FY 06</td> <td style="width: 12.5%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>1.063</td> <td>1.761</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					SMCM UUV	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.063	1.761	RDT&E Articles Quantity				
SMCM UUV	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.063	1.761															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 100px;"> <p>Demonstrate operation of a UUV-based capability package for standoff, multiple MCM operations from surface MCM platforms (e.g., MHC, HSV, etc.)</p> <p>Starting in FY06 effort was moved from Program Element 0603654N, Project 4024. The funding was moved to 0603502N so that all of the UUV funding would fall into one R&D PE.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;"></td> <td style="width: 12.5%;">FY 04</td> <td style="width: 12.5%;">FY 05</td> <td style="width: 12.5%;">FY 06</td> <td style="width: 12.5%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; height: 70px; width: 100%;"></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;"></td> <td style="width: 12.5%;">FY 04</td> <td style="width: 12.5%;">FY 05</td> <td style="width: 12.5%;">FY 06</td> <td style="width: 12.5%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; height: 50px; width: 100%;"></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Total</td> <td style="width: 12.5%;">0.000</td> <td style="width: 12.5%;">0.000</td> <td style="width: 12.5%;">1.063</td> <td style="width: 12.5%;">1.761</td> </tr> </table>					Total	0.000	0.000	1.063	1.761										
Total	0.000	0.000	1.063	1.761															

R-1 SHOPPING LIST - Item No.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface & Shallow Water MCM			PROJECT NUMBER AND NAME 3123 SMCM UUV			
(U) D. OTHER PROGRAM FUNDING SUMMARY:									
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>
SMCMUUV 2622 / OPN					3.100	10.680	10.814	15.099	Continuing
									Total Cost
									Continuing
(U) E. ACQUISITION STRATEGY: *									
<p>SMCM UUV - Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new projects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.</p> <p>The Surface Mine Countermeasures (SMCM) UUV program began in FY04 with a two-year experimentation phase involving Fleet Mine Warfare operators engaged in tactical experimentation with prototype UUVs operating from Surface MCM platforms. The focus of this program is to increase the current capabilities of Surface MCM ships while reducing the overall risk to MCM forces. During this two-year initiative, these UUV Fleet operators will develop tactics for employing UUV systems from SMCM platforms along with operational requirements. Upon completion of the two-year experimentation phase, a competitive acquisition strategy will begin to field a more capable and robust first generation system.</p>									

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE:				
February 2005														
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603502N, Surface & Shallow Water MCM			3123 SMCN UUV								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SMCN Primary Hardware Development	Contract	TBD	0.000					1.063	10/05	1.761	10/06	Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Product Development			0.000	0.000		0.000		1.063		1.761		0.000	2.824	
Program Management Support													0.000	
Program Management Support													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

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Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603502N, Surface & Shallow Water MCM				PROJECT NUMBER AND NAME 3123 SMCM UUV							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Program Management Support													0.000	
Miscellaneous													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Total Cost			0.000	0.000		0.000		1.063		1.761		0.000	2.824	
Remarks:														

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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																		DATE: February 2005																													
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NAME AND												PROJECT NAME AND NUMBER																															
RDT&E, N/BA-4				0603502N, Surface & Shallow Wat												3123 SMCM UUV																															
SMCM UUV Program Schedule																																															
FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011																			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4															
SMCM Shallow & Deept Water UUV																																															
Notional CONOPS (AOA) Study												△																																			
Requirements Definition												□																																			
UOES Operational Eval Systems												□																																			
POC																△																															
IOC Prototype Development																□																															
Testing Final																				□																											
Production Decision																								△																							
Production																								□																							

R-1 SHOPPING LIST - ITEM NO.

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 86 of 94)

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CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 87 of 94)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface and Shallow Water MCM				PROJECT NUMBER AND NAME 9513 Battlespace Preparation Autonomous Undersea Vehcile (BPAUV)					
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Project Cost	0.000	0.000	0.991 *	0.000	0.000	0.000	0.000	0.000	0.000		0.000
RDT&E Articles Qty											
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>* Congressional plus up of the Battlespace Preparation Autonomous Undersea Vehicle (BPAUV) is an unmanned system capable of minehunting and oceanographic data gathering. The BPAUV will be launched and recovered from Littoral Combat Ship (LCS) Flight 0. The Congressional plus up partially funds the development of two engineering development systems. BPAUV will be partially funded via the LCS mission module funding.</p>											

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface & Shallow Water MCM		PROJECT NUMBER AND NAME 9513 BPAUV																
(U) B. Accomplishments/Planned Program																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">BPAUV</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.991 *</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						BPAUV	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.991 *	0.000	0.000	RDT&E Articles Quantity				
BPAUV	FY 04	FY 05	FY 06	FY 07																
Accomplishments/Effort/Subtotal Cost	0.000	0.991 *	0.000	0.000																
RDT&E Articles Quantity																				
<div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>																				
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	FY 04	FY 05	FY 06	FY 07																
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Total	0.000	0.991	0.000	0.000																

R-1 SHOPPING LIST - Item No.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005																								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603502N, Surface & Shallow Water MCM			PROJECT NUMBER AND NAME 9513 BPAUV																										
<p>(U) D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. & Name</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2004</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2005</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2006</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2007</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2008</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2009</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2010</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2011</th> <th style="text-align: center; border-bottom: 1px solid black;">To Complete</th> <th style="text-align: center; border-bottom: 1px solid black;">Total Cost</th> </tr> </thead> <tbody> <tr> <td style="padding-top: 10px;">BPAUV 0603581N/14KB - RDT&E</td> <td></td> <td style="text-align: center;">4.000</td> <td style="text-align: center;">5.100</td> <td style="text-align: center;">2.200</td> <td style="text-align: center;">2.000</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) E. ACQUISITION STRATEGY: *</p> <p style="margin-left: 40px;">BPAUV Two engineering development system Battlespace Preparation Autonomous Undersea Vehicles (BPAUV) will be procured for LCS Flight 0 experimentation.</p>										Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost	BPAUV 0603581N/14KB - RDT&E		4.000	5.100	2.200	2.000					
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost																					
BPAUV 0603581N/14KB - RDT&E		4.000	5.100	2.200	2.000																										

R-1 SHOPPING LIST - Item No. 36

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4				PROGRAM ELEMENT 0603502N, Surface & Shallow Water MCM				PROJECT NUMBER AND NAME 9513 BPAUV							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
BPAUV - Primary Hardware development	Contract	Bluefin	0.000			0.991	03/05						0.991		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
Subtotal Product Development			0.000	0.000		0.991		0.000		0.000		0.000	0.991		
Remarks: FY05 BPAUV Congressional add.															
Program Management Support													0.000		
Program Management Support													0.000		
Training Development													0.000		
Integrated Logistics Support													0.000		
Configuration Management													0.000		
Technical Data													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603502N, Surface & Shallow Water MCM				PROJECT NUMBER AND NAME 9513 BPAUV								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation													0.000		
Operational Test & Evaluation													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															
Program Management Support													0.000		
Miscellaneous													0.000		
													0.000		
													0.000		
													0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															
Total Cost			0.000	0.000		0.991		0.000		0.000		0.000	0.991		
Remarks:															

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CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE: February 2005															
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NAME AND												PROJECT NAME AND NUMBER															
RDT&E, N/BA-4				0603502N, Surface & Shallow Wat												9513 BPAUV															
BPAUV Program Schedule																															
FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4				1 2 3 4			
BPAUV								△																							
Development Contract Award																															
BPAUV Development																															

R-1 SHOPPING LIST - ITEM NO.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 93 of 94)

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CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 36

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 94 of 94)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		R-1 ITEM NOMENCLATURE SURFACE SHIP TORPEDO DEFENSE / 0603506N						
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	\$39.997	\$53.770	\$47.039	\$37.721	\$28.949	\$12.412	\$12.720	\$12.969
Tripwire Torpedo Defense 2854	\$2.479	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
SLQ-25A Torpedo Countermeasure Set Upgrades 9514	\$0.000	\$3.367	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Surface Ship Torpedo Defense 0225	\$37.518	\$50.403	\$47.039	\$37.721	\$28.949	\$12.412	\$12.720	\$12.969
<p>A. Mission Description and Budget Line Justification: Projects 0225/2854 develops the AN/WSQ-11 Torpedo Defense System (TDS) which will provide the Tripwire towed sensors and processors to detect threat torpedo and provide launch orders for the associated Anti-Torpedo Torpedo (ATT) All-Up-Round (AUR) countermeasure. The AN/WSQ-11 TDS will incorporate the functionality of the AN/SLQ-25A (NIXIE) Towed Torpedo Countermeasure. The AN/WSQ-11 is planned for installation on large deck ships, i.e. CVN, amphibious (LHA, LHD, LPD, LSD, AGF, LCC)/Combatant Logistic Forces (AOE), and selected DDG-51 Class ships without towed array. The AN/WSQ-11 TDS development approach espouses an Evolutionary Acquisition strategy of providing incremental surface ship torpedo defense capability to the fleet. The first increment of TDS capability (simple salvo capability) is planned for fleet introduction in FY11. The AN/WSQ-11 TDS is closely linked with the ONR FNC program (Platform Protection and Littoral ASW) which provides advance technology inserts at key transition points in the AN/WSQ-11 schedule.</p>								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME SURFACE SHIP TORPEDO DEFENSE / 0603506N					PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854/9514			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011		
Total PE Cost	\$39.997	\$53.770	\$47.039	\$37.721	\$28.949	\$12.412	\$12.720	\$12.969		
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<p>B. Accomplishments/Planned Program</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04 (0225)</th> <th style="width: 15%;">FY 05 (0225)</th> <th style="width: 15%;">FY 06 (0225)</th> <th style="width: 15%;">FY 07 (0225)</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>33.636</td> <td>43.913</td> <td>40.699</td> <td>31.211</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><u>AN/WSQ-11 SYSTEM</u> FY04 - Award two Industry contracts for conduct of Tripwire DCL at-sea DEMO; Initiate ARL PSU development of ATT ADM. FY05 - Conduct DCL DEMO trials; Continue ATT ADM development and initial in water trials. FY06 - Conduct final DCL DEMO and continue ATT ADM in-water trials; Award post MS B competitive contract for AN/WSQ-11 development. FY07 - Initiate AN/WSQ-11 system integration development.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04 (0225)</th> <th style="width: 15%;">FY 05 (0225)</th> <th style="width: 15%;">FY 06 (0225)</th> <th style="width: 15%;">FY 07 (0225)</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>2.012</td> <td>4.400</td> <td>4.302</td> <td>4.410</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><u>ANTI-TORPEDO TORPEDO (ATT)</u> FY04 - Continue ATT Component Testing; Initiate fabrication of ATT ADM units. FY05 - Continue fabrication of ADM ATT AURs; Conduct first In-water testing of ADM units. (CT-1). FY06 - Continue in water testing (CT2 and CT3) ADM units and initiate post MS B EDM development. FY07 - Continue ATT EDM development and CT-4 and CT-5 trials.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04 (0225)</th> <th style="width: 15%;">FY 05 (0225)</th> <th style="width: 15%;">FY 06 (0225)</th> <th style="width: 15%;">FY 07 (0225)</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.870</td> <td>2.090</td> <td>2.038</td> <td>2.100</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><u>TRIPWIRE</u> FY04 - Initiate build of DCL DEMO prototypes by selected industry companies. FY05 - Conduct initial in water trials of competing DEMO developments (Trials 1 & 2). FY06 - Conduct competitive DEMO sea trial; Initiate post MS B EDM development. FY07 - Continue Tripwire EDM development and TT-1 trial.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04 (2854)</th> <th style="width: 15%;">FY 05 (9514)</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>2.479</td> <td>3.367</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p><u>Congressional Plus-Up</u> FY04 - Develop the AN/SLQ-25A enhanced EC-16 and littoral cable. FY05 - Complete development of AN/SLQ-25A enhanced EC-16 and littoral cable.</p> </div>						FY 04 (0225)	FY 05 (0225)	FY 06 (0225)	FY 07 (0225)	Accomplishments/Effort/Subtotal Cost	33.636	43.913	40.699	31.211	RDT&E Articles Quantity	N/A	N/A	N/A	N/A		FY 04 (0225)	FY 05 (0225)	FY 06 (0225)	FY 07 (0225)	Accomplishments/Effort/Subtotal Cost	2.012	4.400	4.302	4.410	RDT&E Articles Quantity	N/A	N/A	N/A	N/A		FY 04 (0225)	FY 05 (0225)	FY 06 (0225)	FY 07 (0225)	Accomplishments/Effort/Subtotal Cost	1.870	2.090	2.038	2.100	RDT&E Articles Quantity	N/A	N/A	N/A	N/A		FY 04 (2854)	FY 05 (9514)	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.479	3.367	0.000	0.000	RDT&E Articles Quantity	N/A	N/A	N/A	N/A
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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME Surface Ship Torpedo Defense, 0603506N	PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854/9514																																																									
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Sea Trial Rephasing	0.000	0.000	0.000	(1.600)																																																							
SLQ-25A Torpedo CM set Upgrades Congressional Add	0.000	3.400	0.000	0.000																																																							
Subtotal	(4.894)	2.874	(0.436)	(1.896)																																																							

R-1 SHOPPING LIST - Item No. 37

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME Surface Ship Torpedo Defense, 0603506N			PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854/9514					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	To Complete	Total Cost
OPN BLI: 221300 Surface Ship Torpedo Defense - SSTD	13.643	33.169	22.898	8.394	5.791	10.037	4.580	4.690	CONT.	CONT.
WPN BLI: 311300 Surface Ship Torpedo Defense - SSTD	0.000	0.000	3.994	5.865	6.002	8.412	8.595	8.782	CONT.	CONT.
E. ACQUISITION STRATEGY:										
<p>The project develops Surface Ship Torpedo Defense (SSTD) capabilities using an evolutionary acquisition incremental development approach. The existing AN/SLQ-25A NIXIE is upgraded through ECP's performed by the Original Equipment Manufacture (OEM). ATT development will be executed by ARL/PSU for preliminary design and ADM development. AN/WSQ-11 System continued development and integration of the Tripwire and ATT subsystems will be competitively awarded to a single prime contractor in FY06 following Milestone B.</p>										
F. MAJOR PERFORMERS:										
See attached R3										

R-1 SHOPPING LIST - Item No. 37

UNCLASSIFIED

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Budget Item Justification
(Exhibit R-2, page 6 of 10)

R-1 SHOPPING LIST - Item No. 37

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE:		February 2005					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			Surface Ship Torpedo Defense, 0603506N			Surface Ship Torpedo Defense 0225/2854/9514								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support													0.000	
Software Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
Studies & Analyses													0.000	
Miscellaneous				0.000		0.000		0.000		0.000			0.000	
Miscellaneous				2.876		3.291		0.400		0.400		CONT.	0.000	
Award Fees													0.000	
Subtotal Support			0.000	2.876		3.291		0.400		0.400		0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 37

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 3)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT Surface Ship Torpedo Defense, 0603506N				PROJECT NUMBER AND NAME Surface Ship Torpedo Defense 0225/2854/9514							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support	C/CPFF	EG&G Gaithersburg, Md		0.650	01/04	0.700	10/05	0.650	01/06	0.650	01/07	CONT.	0.000	
Travel		PMS 415		0.053	11/03	0.100	11/04	0.150	11/05	0.150	11/06	CONT.	0.000	
Transportation													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.000	0.703		0.800		0.800		0.800		0.000	0.000	
Remarks:														
Total Cost			0.000	39.997		53.770		47.039		37.721		0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 37

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-4, SCHEDULE PROFILE (page 1)				DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE						
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4			Surface Ship Torpedo Defense 0225/2854/9514						
	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	
AN/WSQ-11 System	Draft ORD ▲	△ CDD	△ WSQ-11 Spec	MS B △ WSQ-11 Prime Contract Award	SD&D Phase		LRIP		
				△ PDR	△ DRR	CDR △ ST-1 △ ST-2	△ MS C △ ST-3	△ ST-4 △ ST-5 △ ST-6	△ TE △ OT △ FRP 1st Incr.
Tripwire	Demo Contract Award ▲	DCL Demo Phase		△	EDM Build and Testing (2)		LRIP (2)		
		△ DD-1	△ DD-2	△ Demo Trial	△ TT-1 Software V 1.0 Complete	△ TT-2 Software V 2.0 Complete	△ TT-3 Software V 2.0 Complete	△ TT-4 Software V 3.0 Complete	△ TT-5 Software V 4.0 Complete
Anti-Torpedo Torpedo			△	△	EDM Build and Testing (20)		LRIP (60)		
	ADM Component Build and Testing (10)				△ CT-1	△ CT-2 △ CT-3	△ CT-4 △ CT-5	△ CT-6 △ CT-7 △ CT-8	△ CT-9 △ CT-10

R-1 SHOPPING LIST - Item No. 37

UNCLASSIFIED

Budget Item Justification
(Exhibit R-2, page 9 of 10)

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 37

UNCLASSIFIED

Budget Item Justification
(Exhibit R-2, page 10 of 10)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE:		February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-04				R-1 ITEM NOMENCLATURE 0603512N - Carrier Systems Development					
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Total PE Cost	150.169	162.007	167.823	198.395	160.688	155.120	146.126	85.451	
9181 - Advanced Battlestation/Decision Support System	3.458	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
9349 - Aviation Ship Integration Center	9.425	3.665	0.000	0.000	0.000	0.000	0.000	0.000	
9515 - Sentinel Net	0.000	1.091	0.000	0.000	0.000	0.000	0.000	0.000	
9516 - Surface Ship Composite Moisture Separators	0.000	2.377	0.000	0.000	0.000	0.000	0.000	0.000	
2208 - CVN 21	93.598	102.372	109.362	59.090	49.698	56.873	58.736	42.821	
4004 - EMALS	37.173	50.600	56.630	58.538	26.312	13.455	0.000	0.000	
4005 - Smart Carrier	1.836	1.825	1.831	1.820	1.828	1.823	1.863	1.903	
4006 - CVN 21 Follow Ship	0.000	0.000	0.000	78.947	82.850	82.969	85.527	40.727	
1723 - CV Launch & Recovery Systems	4.679	0.077	0.000	0.000	0.000	0.000	0.000	0.000	
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Navy unique program addresses all technology areas associated with Navy/Marine Corps aircraft operations aboard ships. The program includes:</p> <p>- (U) (9181) - The Advanced Battlestation/Decision Support System (ABS/DSS) provides a low-risk decision support capability that has great potential for multiple Navy platforms and possible application for other services. Expected benefits include: improved situational awareness, reduced response time in a multiple threat environment, manpower reductions, and reductions in Total Ownership Costs (TOC).</p> <p>- (U) (9349) - The Aviation Ship Integration Center provides an environment that supports the development and conceptualization of fully integrated future aircraft carrier advanced technology design. The Center will be used to identify, test, and integrate potential design approaches and products for the CVN 21 Warfare System that are focused on reducing costs by increasing efficiencies in air capable shipbuilding programs. The Center will mitigate CVN 21 advanced technology design risk by enabling detection and resolution of potential problems early in the development cycle, thereby maximizing the Navy's return on its non-recurring design investment and enhancing transformational initiatives necessary to support the CVN 21 Warfare System.</p> <p>- (U) (9515) - Sentinel Net provides a low-risk sensor processing method that builds on the Aircraft Carrier's Tactical Support Center's (CV-TSC) Command and Control (C2) Suite to yield a harbor defense or force protection C2 capability aboard the Carriers.</p>									

R-1 SHOPPING LIST - Item No.

38

UNCLASSIFIED

Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 1 of 72)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE:	February 2005
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /		0603512N - Carrier Systems Development	
BA-04			
<p>- (U) (9516) -Development of Composite Moisture Separators and a related manufacturing process for the CVN 21 Class Aircraft Carrier to replace the stainless steel moisture separators currently in use in NIMITZ Class Aircraft Carrier ventilation systems. The ventilation system has intake air inlets on the shell of the ship. At these inlets there currently are baffled stainless steel moisture separators that reduce the amount of entrained moisture in the air before it gets into the ventilation ducts, thus reducing the amount of corrosion of the ventilation ducts. These stainless steel moisture separators are heavy, and by converting them to a composite moisture separator, topside weight will be reduced. Reducing topside weight supports the CVN 21 Class Key Performance Parameters for Weight and Stability.</p> <p>- (U) (2208) - Development of ship hull, mechanical, propulsion, electrical, aviation, and combat support systems, subsystems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities, and to meet the requirements of existing and pending regulations and statutes critical to the operation of existing and future aircraft carriers.</p> <p>- (U) (4004) - Development of an advanced technology aircraft launch system in support of the CVN 21 Class design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 21 Class ships and could also be retrofit on existing CVNs. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability and reduced operator and maintainer workload.</p> <p>- (U) (4005) - The Smart Carrier Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs (TOC).</p> <p>- (U) (4006) - Development of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 79.</p> <p>- (U) (1723) -- Development of all systems required to provide approach and landing guidance and control, recovery, service, support and launch aircraft operating onto or from ships. Payoffs include increased safety, greater sortie generation rates, enhanced aircraft boarding rates, reduced manning, increased aircraft service life and fleet modernization.</p>			

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 2 of 72)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY					PROJECT NUMBER AND NAME			
RDT&E, N / BA-04	PE 0603512N - Carrier Systems Development				PU 9181 - Advanced Battlestation/Decision Support System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	3.458	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Advanced Battlestation/Decision Support System (ABS/DSS) provides a low-risk decision support capability that has great potential for multiple Navy platforms, and possible application for other services. Expected benefits include: improved situational awareness, reduced response time in a multiple threat environment, manpower reductions, and reductions in Total Ownership Costs (TOC).

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 3 of 72)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9181 - Advanced Battlestation/Decision Support System																	
B. Accomplishments/Planned Program (Cont.) <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%;">FY 04</th> <th style="width: 10%;">FY 05</th> <th style="width: 10%;">FY 06</th> <th style="width: 10%;">FY 07</th> </tr> </thead> <tbody> <tr> <td>Advanced Battlestation/Decision Support System (ABS/DSS)</td> <td style="text-align: center;">3.458</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>- (U) Advanced Battlestation/Decision Support System (ABS/DSS) FY04 technical accomplishments include Combat System test and certification at the Integrated Combat System Test Facility (ICSTF), San Diego, CA. ABS/DSS will be fully integrated into the Aircraft Carrier Tactical Support Center (CV-TSC) and Integrated Warfare Commander Cell (IWCC) initially as a passive display technology, then augmented as a fully integrated element of the Combat System. Fleet demonstrations/requirements working groups are planned for USS KITTY HAWK (CV-63), USS ENTERPRISE (CVN-65), USS EISENHOWER (CVN-69), and USS RONALD REAGAN (CVN-76), depending on field change installation approval cycles.</p> </div>						FY 04	FY 05	FY 06	FY 07	Advanced Battlestation/Decision Support System (ABS/DSS)	3.458	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Advanced Battlestation/Decision Support System (ABS/DSS)	3.458	0.000	0.000	0.000															
RDT&E Articles Quantity																			

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9181 - Advanced Battlestation/Decision Support System																																															
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY2005 President's Budget</td> <td style="text-align: right;">3.560</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>FY2006 President's Budget</td> <td style="text-align: right;">3.458</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.102</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td style="padding-left: 20px;">Inflation Savings</td> <td style="text-align: right;">-0.003</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">SBIR Tax Assessment</td> <td style="text-align: right;">-0.099</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">-0.102</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">0.000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">0.000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 20px;">Contract Award Q2FY05.</p> <p style="margin-top: 20px;">Technical:</p> <p style="margin-left: 20px;">Not Applicable.</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					FY2005 President's Budget	3.560	0.000	0.000	0.000	FY2006 President's Budget	3.458	0.000	0.000	0.000	Total Adjustments	-0.102	0.000	0.000	0.000	Summary of Adjustments					Inflation Savings	-0.003				SBIR Tax Assessment	-0.099				Total Adjustments	-0.102	0.000	0.000	0.000
	FY 2004	FY 2005	FY 2006	FY 2007																																													
Funding:																																																	
FY2005 President's Budget	3.560	0.000	0.000	0.000																																													
FY2006 President's Budget	3.458	0.000	0.000	0.000																																													
Total Adjustments	-0.102	0.000	0.000	0.000																																													
Summary of Adjustments																																																	
Inflation Savings	-0.003																																																
SBIR Tax Assessment	-0.099																																																
Total Adjustments	-0.102	0.000	0.000	0.000																																													

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 6 of 72)

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 7 of 72)

February 2005

PROGRAM ELEMENT

PROJECT NUMBER AND NAME

PE 0603512N - Carrier Systems Development

PU 9181 - Advanced Battlestation/Decision Support System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development Advanced Battlestation/Decision Support System	C/CPFF	21st Century	3.384	3.164	01/05								6.548	
	WX	NUWC Keyport, WA	0.000	0.254	06/04								0.254	
	Various	Miscellaneous	0.044	0.040									0.084	
Subtotal Product Development			3.428	3.458		0.000		0.000					6.886	

Remarks: Contract Award 4th Quarter FY03

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-04			PROGRAM ELEMENT PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 9181 - Advanced Battlestation/Decision Support System								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Operational Test & Evaluation														
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel														
Transportation														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks:														
Total Cost			3.428	3.458		0.000		0.000				0.000	6.886	
Remarks:														

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:								
APPROPRIATION/BUDGET ACTIVITY									PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-04									PE 0603512N - Carrier Systems Development												PU 9181 - Advanced Battlestation/Decision Support System											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
ABS/DSS Development																																
ABS/DSS Fleet Demo																																
Follow-on Development/ Spiral I																																
Test & Evaluation Milestones																																
Development Test																																
Contract Milestones																																
Development Contract																																

R-1 SHOPPING LIST - Item No. 38

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CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 10 of 72)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04		PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 9515 - Sentinel Net for Anti-Terrorism and Force Protection			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	1.091	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>Sentinel Net provides a low-risk sensor processing method that builds on the Aircraft Carrier's Tactical Support Center's (CV-TSC) Command and Control (C2) Suite to yield a harbor defense or force protection C2 capability aboard the Carriers.</p>								

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UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9515 - Sentinel Net for Anti-Terrorism and Force Protection															
B. Accomplishments/Planned Program (Cont.)																	
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 40%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Advanced Battlestation/Decision Support System (ABS/DSS)</td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.091</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>				FY 04	FY 05	FY 06	FY 07	Advanced Battlestation/Decision Support System (ABS/DSS)	0.000	1.091	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07													
Advanced Battlestation/Decision Support System (ABS/DSS)	0.000	1.091	0.000	0.000													
RDT&E Articles Quantity																	
<div style="border: 1px solid black; min-height: 100px; margin-top: 10px;"></div>																	

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9515 - Sentinel Net for Anti-Terrorism and Force Protection																																															
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY2005 President's Budget</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>FY2006 President's Budget</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">1.091</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">1.091</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td style="padding-left: 20px;">Congressional Add</td> <td></td> <td style="text-align: right;">1.100</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 40px;">Recission</td> <td></td> <td style="text-align: right;">-0.009</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">1.091</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 20px;">FY05 Contract Award Q2FY05.</p> <p style="margin-top: 20px;">Technical:</p> <p style="margin-left: 20px;">Not Applicable.</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					FY2005 President's Budget	0.000	0.000	0.000	0.000	FY2006 President's Budget	0.000	1.091	0.000	0.000	Total Adjustments	0.000	1.091	0.000	0.000	Summary of Adjustments					Congressional Add		1.100			Recission		-0.009			Total Adjustments	0.000	1.091	0.000	0.000
	FY 2004	FY 2005	FY 2006	FY 2007																																													
Funding:																																																	
FY2005 President's Budget	0.000	0.000	0.000	0.000																																													
FY2006 President's Budget	0.000	1.091	0.000	0.000																																													
Total Adjustments	0.000	1.091	0.000	0.000																																													
Summary of Adjustments																																																	
Congressional Add		1.100																																															
Recission		-0.009																																															
Total Adjustments	0.000	1.091	0.000	0.000																																													

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9515 - Sentinel Net for Anti-Terrorism and Force Protection	
D. OTHER PROGRAM FUNDING SUMMARY:			
E. ACQUISITION STRATEGY:			
This procurement is an SBIR transition and will be awarded on a sole source basis to 21st Century Systems, Inc., Omaha, Nebraska.			
F. MAJOR PERFORMERS:			
Johns Hopkins University Applied Physics Laboratory (JHU/APL), MD. 21st Century Systems, Inc., Omaha, NE, Development			

R-1 SHOPPING LIST - Item No. 38

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 15 of 72)

R-1 SHOPPING LIST - Item No. 38

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-04			PROGRAM ELEMENT PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 9515 - Sentinel Net for Anti-Terrorism and Force Protection								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Operational Test & Evaluation														
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel														
Transportation														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks:														
Total Cost			0.000	0.000		1.091		0.000				0.000	1.091	
Remarks:														

R-1 SHOPPING LIST - Item No. 38

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-04												PE 0603512N - Carrier Systems Development												PU 9515 - Sentinel Net for Anti-Terrorism and Force Protection											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Acquisition Milestones																																			
Sentinel Net Devel. Spiral 1																																			
Sentinel Net Fleet Demo																																			
Follow-on Development/ Spiral 2																																			
Test & Evaluation Milestones																																			
Development Test																																			
Contract Milestones																																			
Development Contract																																			

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 18 of 72)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:
								February 2005
APPROPRIATION/BUDGET ACTIVITY	PROJECT NUMBER AND NAME							
RDT&E, N / BA-04	PE 0603512N - Carrier Systems Development				PU 9349 Aviation Ship Integration Center			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY2010	FY2011
Project Cost	9.425	3.665	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Northrop Grumman Newport News (NGNN) Virginia Aviation Ship Integration Center (VASCIC) provides an environment that supports the development and conceptualization of a fully integrated future aircraft carrier advanced technology design. The Center will be used to identify, test, and integrate potential design approaches and products for the CVN 21 Combat/Warfare System that are focused on reducing costs by increasing efficiencies in air capable shipbuilding programs. The Center will mitigate CVN 21 advanced technology design risk by enabling detection and resolution of potential problems early in the development cycle, thereby maximizing the Navy's return on its non-recurring design investment and enhancing transformational initiatives necessary to support the CVN 21 Warfare System.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9349 Aviation Ship Integration Center		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	9.425	3.665	0.000	0.000
RDT&E Articles Quantity				
<p>- (U) Aviation Ship Integration Center - Develop modeling and simulation capability through integration of existing M&S assets with new M&S Systems. Investigate and develop connectivity to various government and industry M&S activities. Relocate the existing M&S facility to the VASCIC Research Center. Build a support structure in the Center, procure hardware and software, and integrate various commercial and government M&S software programs. Develop and implement an Aircraft Carrier Compartment Flexibility/Modularity Program and laboratory to provide an evaluation environment for investigating, prototyping, testing and qualifying new compartment outfitting techniques and products focusing on reducing the construction cost and schedule impacts associated with the installation of electronic systems during new construction and improving fleet maintenance and modernization after delivery. Investigate existing commercial and military technologies that have the potential to simplify and accelerate the equipment installation process during ship construction and technology refresh/reconfiguration updates. Develop a prototype test bed to: examine the use of advanced materials to improve cost/performance of existing modular deck tile and reduce weight; examine the adaptation of aircraft technology clamping devices to reduce outfitting durations; examine alternative methods of modular deck installation to decrease installation times; and aid in the development of simulations and models to analyze the shock and vibration characteristics of modular decking. Continue the application of Modeling and Simulation to aid in the CVN 21 ship design. Develop a facility in the VASCIC to investigate and develop connectivity to various government and industry M&S activities, and develop a M&S laboratory within the VASCIC to support the ship design and sortie generation rate analysis and to facilitate CVN 21 participation in future battle-space experiments.</p>				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9349 Aviation Ship Integration Center		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
FY05 President's Budget	9.691	0.000	0.000	0.000
FY06 President's Budget	9.425	3.665	0.000	0.000
Total Adjustments	-0.266	3.665	0.000	0.000
Summary of Adjustments				
Inflation Savings	-0.009			
SBIR	-0.257			
Congressional Add		3.700		
Recissions		-0.034		
Other Adjustments		-0.001		
Total Adjustments	-0.266	3.665	0	0

Schedule:

The CVN 78 Basic Construction contract will be awarded in FY08 with delivery in FY15.

Technical:

Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04			PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 9349 Aviation Ship Integration Center			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	1,162.905	623.551	564.913	795.994	3,689.413	3,730.407	1,657.362	539.680	Cont.	Cont.
RDT&E:										
0604567N - Ship Contract Design, Live Fire T&E	112.730	136.516	55.672	86.506	83.826	59.393	40.082	87.499	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	198.814	168.080	168.373	170.980	160.992	152.814	133.951	105.975	Cont.	Cont.

E. ACQUISITION STRATEGY:

The CVN 78 will be the first ship of the CVN 21 class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

F. MAJOR PERFORMERS:

Northrop Grumman Newport News, Newport News, VA, Design/Component Development/Construction

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 23 of 72)

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-04			PROGRAM ELEMENT PE 0603512N - Carrier Systems Development							PROJECT NUMBER AND NAME PU 9349 Aviation Ship Integration Center				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation														
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support														
Program Management Support														
Travel														
Transportation														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Total Cost			0.000	9.425		3.665		0.000		0.000		0.000	13.090	
Remarks:														

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:								
February 2005																																
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NUMBER AND NAME								PROJECT NUMBER AND NAME																
RDT&E, N / BA-04								PE 0603512N - Carrier Systems Development								PU 9349 Aviation Ship Integration Center																
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones		MS B	SRR				SFR		PDR				CDR	DAB	PR																	
Propulsion Plant																																
EMALS		SDD AWARD			SRR	SFR	PDR	CDR 1	CDR 2	TRR 1			TRR 2				LRIP															
DBR Radar Suite		PDR			CDR																											
Advanced Arresting Gear	SRR			PDR	MS B			CDR-1-2					TRR 1				TRR 2				MS C											
Test & Evaluation Milestones																																
Development Test	◇						DT A2					◇	◇			DT B1				◇	◇			DT B2			◇	◇	DT B3			
Operational Test							OT B1	◇					◇			OT B2	◇		OT B3	◇			OT B4	◇				◇		OT B5	◇	
Contract Milestones																																
IPPD Contract																																
CP Contract																																
Construction Contract																																
Full Funding (SCN)																																

R-1 SHOPPING LIST - Item No. 38

* Not required for Budget Activities 1, 2, 3, and 6

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail							DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E, N / BA-04		PE 0603512N - Carrier Systems Development				PU 9349 Aviation Ship Integration Center			
Schedule Profile	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	
Developmental Tests DT A-2	1-4Q								
Advanced Arresting Gear SRR	1Q								
EMALS SDD Phase Initiate	2Q								
Dual Band Radar PDR	2Q								
CVN 21 Milestone B	3Q								
CVN 21 SRR	3Q								
Construction Preparation Contract Award	3Q								
Advanced Arresting Gear PDR	4Q								
EMALS SRR		1Q							
Developmental Tests DT A-2		1-4Q							
Dual Band Radar CDR		1Q							
Advanced Arresting Gear Milestone B		1Q							
Operational Tests OT-B1		2-3Q							
EMALS SFR		2Q							
CVN 21 SFR		3Q							
EMALSP PDR		3Q							
EMALS CDR 1		4Q							
Advanced Arresting Gear CDR 1		4Q							
CVN 21 PDR			1Q						
Developmental Tests DT A-2			1-4Q						
AAG CDR 2			1Q						
EMALS CDR 2			2Q						
EMALS TRR 1(HALT/HCT)			4Q						
CVN 21 CDR				1Q					
Developmental Tests DT-B1				1-4Q					
Operational Tests OT-B2				1-4Q					
CVN 21 DAB PR				2Q					
AAG TRR 1 (DT/OA)				2Q					
EMALS TRR 2 (DT/OA)				4Q					
CVN 21 Construction Contract Award					1Q				
CVN 21 SCN Full Funding					1Q				
Developmental Tests DT-B1					1-4Q				
Operational Tests OT-B3					1-4Q				
EMALS LRIP					4Q				
AAG TRR 2 (DT/OA)						1Q			
Developmental Tests DT-B1						1Q			
Operational Tests OT-B4						1-4Q			
Developmental Tests DT-B2						3-4Q			
Developmental Tests DT-B2							1-4Q		
AAG LRIP								1Q	
Operational Tests OT-B5								1-4Q	
Developmental Tests DT-B3								2-4Q	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04		PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 9516 Surface Ship Composite Moisture Separators				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY2010	FY2011	
Project Cost	0.000	2.377	0.000	0.000	0.000	0.000	0.000	0.000	
RDT&E Articles Qty									

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This item funds design and development of Composite Moisture Separators and a related manufacturing process for the CVN 21 Class Aircraft Carrier to replace the stainless steel moisture separators currently in use in NIMITZ Class Aircraft Carrier ventilation systems. The ventilation system has intake air inlets on the shell of the ship. At these inlets there currently are baffled stainless steel moisture separators that reduce the amount of entrained moisture in the air before it gets into the ventilation ducts, thus reducing the amount of corrosion of the ventilation ducts. These stainless steel moisture separators are heavy, and by converting them to a composite moisture separator, topside weight will be reduced. Reducing topside weight supports the CVN 21 Class Key Performance Parameters for Weight and Stability.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9516 Surface Ship Composite Moisture Separators		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	2.377	0.000	0.000
RDT&E Articles Quantity				
<p>- (U) Surface Ship Composite Moisture Separators - Perform a ship design analysis of moisture separator sizes, locations and quantities in the ship. Work with vendor to choose a representative size for which to develop a prototype. Select and prove out the manufacturing process, materials and the design for the vanes and frame system, ensuring quality and producibility. As part of the component design process, perform pressure drop analysis, as well as airflow and moisture separation analysis at both the sub-element and full scale level. Produce one prototype unit. Develop an acquisition and life cycle cost analysis and a plan of action and milestone for testing, qualifying and installation of the prototype unit on a ship for evaluation.</p>				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 9516 Surface Ship Composite Moisture Separators		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
FY05 President's Budget	0.000	0.000	0.000	0.000
FY06 President's Budget	0.000	2.377	0.000	0.000
Total Adjustments	0.000	2.377	0.000	0.000
Summary of Adjustments				
Congressional Add		2.400		
Recissions		-0.022		
Other adjustments		-0.001		
Total Adjustments	0	2.377	0.000	0.000

Schedule:

The CVN 78 Basic Construction contract will be awarded in FY08 with delivery in FY15.

Technical:

Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:		
								February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME				
RDT&E, N / BA-04			PE 0603512N - Carrier Systems Development			PU 9516 Surface Ship Composite Moisture Separators				
D. OTHER PROGRAM FUNDING SUMMARY:										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	1,162.905	623.551	564.913	795.994	3,689.413	3,730.407	1,657.362	539.680	Cont.	Cont.
RDT&E:										
0604567N - Ship Contract Design, Live Fire T&E	112.730	136.516	55.672	86.506	83.826	59.393	40.082	87.499	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	198.814	168.080	168.373	170.980	160.992	152.814	133.951	105.975	Cont.	Cont.
*Note: Only a portion of the funding in PE 0603570N is included in the CVN 21 Program										
E. ACQUISITION STRATEGY:										
The CVN 78 will be the first ship of the CVN 21 class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.										
F. MAJOR PERFORMERS:										
Northrop Grumman Newport News, Newport News, VA, Design/Component Development/Construction										

R-1 SHOPPING LIST - Item No. 38

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 31 of 72)

[illegible]

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RD&E, N / BA-04			PROGRAM ELEMENT PE 0603512N - Carrier Systems Development							PROJECT NUMBER AND NAME PU 9516 Surface Ship Composite Moisture Separators				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation														
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support														
Program Management Support														
Travel														
Transportation														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Total Cost			0.000	0.000		2.377		0.000		0.000		0.000	2.377	
Remarks:														

R-1 SHOPPING LIST - Item No. 38

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Exhibit R-2, RD&E Budget Item Justification
(Exhibit R-2, page 32 of 72)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: February 2005																	
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME																					
RDT&E, N / BA-04								PE 0603512N - Carrier Systems Development												PU 9516 Surface Ship Composite Moisture Separators																					
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011												
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4													
Acquisition Milestones		MS B △	SRR △				SFR △		PDR △				CDR △	DAB △	PR																										
Propulsion Plant																																									
EMALS		SDD AWARD △			SRR △	SFR △	PDR △	CDR 1 △		CDR 2 △		TRR 1 △		TRR 2 △					LRIP △																						
DBR Radar Suite		PDR △			CDR △																																				
Advanced Arresting Gear	SRR △			PDR △	MS B △			CDR-1 △	-2 △				TRR 1 △						TRR 2 △				MS C △																		
Test & Evaluation Milestones																																									
Development Test	◇													◇	DT B1												◇	DT B2								◇	DT B3				◇
Operational Test						OT B1								OT B2				OT B3				OT B4								OT B5				◇							
Contract Milestones																																									
IPPD Contract																																									
CP Contract	Contract Award △																																								
Construction Contract																																									
Full Funding (SCN)	X																																								

R-1 SHOPPING LIST - Item No. 38

* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 33 of 72)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04		PROGRAM ELEMENT PE 0603512N - Carrier Systems Development				PROJECT NUMBER AND NAME PU 9516 Surface Ship Composite Moisture Separators		
Schedule Profile	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Developmental Tests DT A-2	1-4Q							
Advanced Arresting Gear SRR	1Q							
EMALS SDD Phase Initiate	2Q							
Dual Band Radar PDR	2Q							
CVN 21 Milestone B	3Q							
CVN 21 SRR	3Q							
Construction Preparation Contract Award	3Q							
Advanced Arresting Gear PDR	4Q							
EMALS SRR		1Q						
Developmental Tests DT A-2		1-4Q						
Dual Band Radar CDR		1Q						
Advanced Arresting Gear Milestone B		1Q						
Operational Tests OT-B1		2-3Q						
EMALS SFR		2Q						
CVN 21 SFR		3Q						
EMALSP PDR		3Q						
EMALS CDR 1		4Q						
Advanced Arresting Gear CDR 1		4Q						
CVN 21 PDR			1Q					
Developmental Tests DT A-2			1-4Q					
AAG CDR 2			1Q					
EMALS CDR 2			2Q					
EMALS TRR 1(HALT/HCT)			4Q					
CVN 21 CDR				1Q				
Developmental Tests DT-B1				1-4Q				
Operational Tests OT-B2				1-4Q				
CVN 21 DAB PR				2Q				
AAG TRR 1 (DT/OA)				2Q				
EMALS TRR 2 (DT/OA)				4Q				
CVN 21 Construction Contract Award					1Q			
CVN 21 SCN Full Funding					1Q			
Developmental Tests DT-B1					1-4Q			
Operational Tests OT-B3					1-4Q			
EMALS LRIP					4Q			
AAG TRR 2 (DT/OA)						1Q		
Developmental Tests DT-B1						1Q		
Operational Tests OT-B4						1-4Q		
Developmental Tests DT-B2						3-4Q		
Developmental Tests DT-B2							1-4Q	
AAG LRIP								1Q
Operational Tests OT-B5								1-4Q
Developmental Tests DT-B3								2-4Q

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:	February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04		PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 2208 - CVN 21				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost	93.598	102.372	109.362	59.090	49.698	56.873	58.736	42.821	
RDT&E Articles Qty									

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides for the development of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project transitions the most promising technologies from the Navy technology base, other government laboratories, and the private sector into specific advanced development efforts. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 78 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 2208 - CVN 21		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	21.089	13.400	3.600	0.000
RDT&E Articles Quantity				
<div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>- (U) Non-Nuclear Propulsion Plant Development - Complete fabrication of prototype Main Turbine Generator (MTG) and detailed design. Develop prototype qualification test plans. Initiate and complete MTG prototype qualification testing and shock test. Prepare for post-shock steam testing and prototype disassembly and inspection. Continue development of testing requirements and the identification and evaluation of testing capabilities. Continue development of inputs to the integrated product model. Continue prototyping and implementation of automated workflow for construction deliverables. Continue to integrate analysis and other required functions into product model design. Continue development of mechanical and electrical systems that interface with the propulsion plant.</p> </div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	66.153	78.582	99.595	54.930
RDT&E Articles Quantity				
<div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>- (U) CVN 21 Advanced Technology Design & Development- Commence and continue development and transition of technologies to support CVN 21 Key Performance Parameters (KPPs): increased sortie generation rate, further reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate the new propulsion plant and Electromagnetic Aircraft Launch System, and expand the design build approach to include the whole ship, to optimize various systems and arrangements to meet KPPs, and to improve overall performance. Technologies and design efforts include, but are not limited to: Advanced Weapons Elevators technologies to increase throughput and improve survivability; Heavy Underway Replenishment technologies to increase individual payload limits and transfer rates per station per hour; Improved Material and Weapons Handling Arrangements and Equipment Modifications to improve the flow of material and weapons while simultaneously reducing required manpower; Improved Survivability technologies; Combat/Warfare Systems design/integration; and an Improved/Enlarged Flight Deck to improve aircraft spotting and movement and to incorporate the Advanced Arresting Gear.</p> </div>				

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 2208 - CVN 21		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	6.356	10.390	6.167	4.160
RDT&E Articles Quantity				
<p>- (U) CVN 21 - Test & Evaluation - Determine specific developmental test requirements (DT), related modeling and simulation and develop test plans. Conduct actual test events including tests on a Large Test Asset. DT-A2 events will be based on CVN 78 system requirements and capabilities. Items such as test articles, instrumentation, support equipment, threat representation, test targets and other expendables, operational force test support, models, simulations, test-beds, special requirements, and funding needs will be finalized and provided in TEMP 1610 Rev B (in support of the FY08 construction contract award). The NGNN T&E IPT will continue planning and execution of DT-A2 events and will identify, plan and begin to execute DT-B events to demonstrate that CVN 78 concepts meet required capabilities.</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 2208 - CVN 21																																																									
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Funding:</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">102.806</td> <td style="text-align: right;">104.465</td> <td style="text-align: right;">95.297</td> <td style="text-align: right;">49.548</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">93.598</td> <td style="text-align: right;">102.372</td> <td style="text-align: right;">109.362</td> <td style="text-align: right;">59.090</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-9.208</td> <td style="text-align: right; border-top: 1px solid black;">-2.093</td> <td style="text-align: right; border-top: 1px solid black;">14.065</td> <td style="text-align: right; border-top: 1px solid black;">9.542</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td style="padding-left: 20px;">Congressional Recissions</td> <td style="text-align: right;">-1.144</td> <td style="text-align: right;">-1.072</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">SBIR</td> <td style="text-align: right;">-1.952</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inflation Savings</td> <td style="text-align: right;">-0.094</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Technical & Miscellaneous Adjustments</td> <td style="text-align: right;">-6.018</td> <td style="text-align: right;">-0.021</td> <td style="text-align: right;">14.065</td> <td style="text-align: right;">9.542</td> </tr> <tr> <td style="padding-left: 20px;">Reprogramming</td> <td></td> <td style="text-align: right;">-1.000</td> <td></td> <td></td> </tr> <tr> <td style="padding-top: 20px;">Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-9.208</td> <td style="text-align: right; border-top: 1px solid black;">-2.093</td> <td style="text-align: right; border-top: 1px solid black;">14.065</td> <td style="text-align: right; border-top: 1px solid black;">9.542</td> </tr> </tbody> </table> <p style="margin-top: 40px;">Schedule:</p> <p style="margin-left: 20px;">The CVN 78 Basic Construction contract will be awarded in FY08 with delivery in FY15.</p> <p style="margin-top: 40px;">Technical:</p> <p style="margin-left: 20px;">Not Applicable</p>					Funding:	FY 2004	FY 2005	FY 2006	FY 2007	FY05 President's Budget	102.806	104.465	95.297	49.548	FY06 President's Budget	93.598	102.372	109.362	59.090	Total Adjustments	-9.208	-2.093	14.065	9.542	Summary of Adjustments					Congressional Recissions	-1.144	-1.072			SBIR	-1.952				Inflation Savings	-0.094				Technical & Miscellaneous Adjustments	-6.018	-0.021	14.065	9.542	Reprogramming		-1.000			Subtotal	-9.208	-2.093	14.065	9.542
Funding:	FY 2004	FY 2005	FY 2006	FY 2007																																																							
FY05 President's Budget	102.806	104.465	95.297	49.548																																																							
FY06 President's Budget	93.598	102.372	109.362	59.090																																																							
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Reprogramming		-1.000																																																									
Subtotal	-9.208	-2.093	14.065	9.542																																																							

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04			PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 2208 - CVN 21				

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	1,162.905	623.551	564.913	795.994	3,689.413	3,730.407	1,657.362	539.680	Cont.	Cont.
RDT&E:										
0604567N - Ship Contract Design, Live Fire T&E	112.730	136.516	55.672	86.506	83.826	59.393	40.082	87.499	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	198.814	168.080	168.373	170.980	160.992	152.814	133.951	105.975	Cont.	Cont.
*Note: Only a portion of the funding in PE 0603570N is included in the CVN 21 Program										

E. ACQUISITION STRATEGY:

The CVN 78 will be the first ship of the CVN 21 class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

F. MAJOR PERFORMERS:

Northrop Grumman Newport News, Newport News, VA, Design/Component Development/Construction

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 40 of 72)

Exhibit R-3 Cost Analysis (page 1)								February 2005						
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04			PROGRAM ELEMENT PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 2208 - CVN 21								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development														
Propulsion Plant Development	SS,CPFF	BETTIS, PA	71.627										71.627	71.627
	CPFF	NGNN, VA	120.347	20.547	11/03	12.700	11/04	3.322	11/05				156.916	156.916
	Various	Miscellaneous	9.062	0.542	11/03	0.700	11/04	0.278	11/05				10.582	
Advanced Design & Development	CPAF	NGNN	13.126	29.783	11/03	33.250	11/04	19.000	11/05	26.273	11/06	Continuing	Continuing	
	WX	NSWC Carderock	18.301	21.212	11/03	31.347	11/04-2/05	31.580	11/05	5.790	11/06	Continuing	Continuing	
	WX	NAVAIR	0.000	2.929	11/03	2.000	11/04	3.200	11/05	4.540	11/06			
	WX	NAWC Lakehurst	1.500	0.966	11/03	2.705	11/04	15.125	11/05	4.470	11/06	Continuing	Continuing	
	WX	NSWC Dahlgren	1.938	1.305	11/03	0.850	11/04	5.250	11/05	7.370	11/06	Continuing	Continuing	
	WX	NSWC P. H.	0.000	4.000	11/03	1.000	11/04	1.000	11/05				6.000	
	PD	SPAWAR	0.715	1.780	11/03	0.700	11/04	2.580	11/05	1.840	11/06	Continuing	Continuing	
	PR	NAVSEA SEAPORT						7.248	12/05					
	Various	Miscellaneous	14.123	4.178	11/03	6.730	11/04	14.612	11/05	4.647	11/06	Continuing	Continuing	
Subtotal Product Development			250.739	87.242		91.982		103.195		54.930		Continuing	Continuing	

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-04			PE 0603512N - Carrier Systems Development			PU 2208 - CVN 21								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
CVN 21 Class														
	CPAF	NGNN	0.000	1.233	01/04-03/04	0.500	11/04	0.942	11/05	0.925	11/06	Continuing	Continuing	
	WX	NAWC AD	0.000	2.301	11/03	6.995	11/04						9.296	
	WX	NSWC Dahlgren	0.000	0.874	11/03	0.322	11/04	0.525	11/05	0.675	11/06	Continuing	Continuing	
	Various	PARMS	0.000					1.000	11/05	0.725	11/06	Continuing	Continuing	
	Various	Miscellaneous	0.000	1.500	11/03-03/04	1.973	11/04	3.100	11/05	1.035	11/06	Continuing	Continuing	
Operational Test & Evaluation	WX	COMOPTEVFOR	0.000	0.448	01/04	0.600	11/04	0.600	11/05	0.800	11/06	Continuing	Continuing	
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	6.356		10.390		6.167		4.160		Continuing	Continuing	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel														
Transportation														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		Continuing	Continuing	
Remarks:														
Total Cost			250.739	93.598		102.372		109.362		59.090		Continuing	Continuing	

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 41 of 72)

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:																				
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME																				
RDT&E, N / BA-04												PE 0603512N - Carrier Systems Development												PU 2208 - CVN 21																				
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011															
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4												
Acquisition Milestones		MS B ▲	SRR ▲				SFR ▲		PDR ▲				CDR ▲	DAB ▲	PR																													
Propulsion Plant																																												
EMALS		SDD AWARD ▲			SRR ▲	SFR ▲	PDR ▲	CDR 1 ▲	CDR 2 ▲	TRR 1 ▲			TRR 2 ▲						LRIP ▲																									
DBR Radar Suite		PDR ▲			CDR ▲																																							
Advanced Arresting Gear	SRR ▲			PDR ▲	MS B ▲			CDR-1-2 ▲					TRR 1 ▲						TRR 2 ▲				MS C ▲																					
Test & Evaluation Milestones																																												
Development Test	◆	DT A2										◆	DT B1										◆	DT B2										◆	DT B3									
Operational Test					OT B1			◆					◆	OT B2			◆	OT B3			◆	OT B4			◆					OT B5			◆											
Contract Milestones																																												
IPPD Contract																																												
CP Contract																																												
Construction Contract																																												
Full Funding (SCN)																																												

R-1 SHOPPING LIST - Item No. 38

* Not required for Budget Activities 1, 2, 3, and 6

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04				PROGRAM ELEMENT PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 2208 - CVN 21	
Schedule Profile	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Developmental Tests DT A-2	1-4Q							
Advanced Arresting Gear SRR	1Q							
EMALS SDD Phase Initiate	2Q							
Dual Band Radar PDR	2Q							
CVN 21 Milestone B	3Q							
CVN 21 SRR	3Q							
Construction Preparation Contract Award	3Q							
Advanced Arresting Gear PDR	4Q							
EMALS SRR		1Q						
Developmental Tests DT A-2		1-4Q						
Dual Band Radar CDR		1Q						
Advanced Arresting Gear Milestone B		1Q						
Operational Tests OT-B1		2-3Q						
EMALS SFR		2Q						
CVN 21 SFR		3Q						
EMALSP PDR		3Q						
EMALS CDR 1		4Q						
Advanced Arresting Gear CDR 1		4Q						
CVN 21 PDR			1Q					
Developmental Tests DT A-2			1-4Q					
AAG CDR 2			1Q					
EMALS CDR 2			2Q					
EMALS TRR 1(HALT/HCT)			4Q					
CVN 21 CDR				1Q				
Developmental Tests DT-B1				1-4Q				
Operational Tests OT-B2				1-4Q				
CVN 21 DAB PR				2Q				
AAG TRR 1 (DT/OA)				2Q				
EMALS TRR 2 (DT/OA)				4Q				
CVN 21 Construction Contract Award					1Q			
CVN 21 SCN Full Funding					1Q			
Developmental Tests DT-B1					1-4Q			
Operational Tests OT-B3					1-4Q			
EMALS LRIP					4Q			
AAG TRR 2 (DT/OA)						1Q		
Developmental Tests DT-B1						1Q		
Operational Tests OT-B4						1-4Q		
Developmental Tests DT-B2						3-4Q		
Developmental Tests DT-B2							1-4Q	
AAG LRIP								1Q
Operational Tests OT-B5								1-4Q
Developmental Tests DT-B3								2-4Q

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04		PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 4004 - EMALS				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost	37.173	50.600	56.630	58.538	26.312	13.455	0.000	0.000	
RDT&E Articles Qty			1						
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>This project provides for the development of an advanced technology aircraft launch system in support of the CVN 78 design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 78 and follow-on ships of the CVN 21 Class. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability, and reduced operator and maintainer workload.</p>									

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 4004 - EMALS																	
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Accomplishments/Effort/Subtotal Cost	37.173	50.600	56.630	58.538															
RDT&E Articles Quantity			1																

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																			
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EXHIBIT R-2a, RDT&E Project Justification									DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04			PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 4004 - EMALS				

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	1,162.905	623.551	564.913	795.994	3,689.413	3,730.407	1,657.362	539.680	Cont.	Cont.
RDT&E:										
0604567N - Ship Contract Design, Live Fire T&E	112.730	136.516	55.672	86.506	83.826	59.393	40.082	87.499	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	198.814	168.080	168.373	170.980	160.992	152.814	133.951	105.975	Cont.	Cont.

*Note: Only a portion of the funding in PE 0603570N is included in the CVN 21 Program

E. ACQUISITION STRATEGY:

The CVN 78 will be the first ship of the CVN 21 class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

F. MAJOR PERFORMERS:

General Atomics, San Diego, CA, EMALS Design and Development
 Naval Air Warfare Center, Aircraft Division, Lakehurst, NJ: EMALS Development and Test.

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-04			PE 0603512N - Carrier Systems Development			PU 4004 - EMALS								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development														
Aircraft Launch, Recovery & Support	CPAF	Northrop Grumman	75.215	8.137	11/03	0.266	11/04					Continuing	Continuing	Continuing
	CPAF	General Atomics (PDRR)	76.028	6.691	11/03							Continuing	Continuing	Continuing
	CPIF	General Atomics (SDD)		16.924	04/04	41.234	11/04-8/05	39.178	11/05	36.340	11/06	Continuing	Continuing	Continuing
	WX	NAWC Lakehurst, NJ	10.884	4.028	11/03	5.207	11/04	5.521	11/05	5.631	11/06	Continuing	Continuing	Continuing
	CPAF	NGNN, VA	2.270									Continuing	Continuing	Continuing
	Various	Miscellaneous	0.000			1.614	11/04	3.952	11/05	4.098	11/06	Continuing	Continuing	Continuing
Subtotal Product Development			164.397	35.780		48.321		48.651		46.069		Continuing	Continuing	Continuing
Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 44004 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 44004 Exhibit.														
Development Support														
Software Development														
Training Development														
Integrated Logistics Support														
Configuration Management														
Technical Data														
GFE														
Award Fees														
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 44004 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 44004 Exhibit.														

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04			PROGRAM ELEMENT PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 4004 - EMALS								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Aircraft Launch, Recovery & Support	WX	Lakehurst NJ	5.038	1.393	11/03	2.279	11/04	7.979	11/05	12.469	11/06	Continuing	Continuing	
Subtotal T&E			5.038	1.393		2.279		7.979		12.469		Continuing	Continuing	
Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 44004 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 44004 Exhibit.														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks: Prior Years were funded under PE 0603512N, PU 42208; however, prior year values have been shifted to PU 44004 in keeping with the CVN 21 Project realignment and in order to reflect program continuity on the PU 44004 Exhibit.														
Total Cost			169.435	37.173		50.600		56.630		58.538		Continuing	Continuing	
Remarks: FY02 and Prior Years were funded under PE 0603512N, PU 42208														

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EXHIBIT R4, Schedule Profile																								DATE:																															
APPROPRIATION/BUDGET ACTIVITY																								PROGRAM ELEMENT NUMBER AND NAME																PROJECT NUMBER AND NAME															
RDT&E, N / BA-04																								PE 0603512N - Carrier Systems Development																PU 4004 - EMALS															
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011																										
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																							
Acquisition Milestones		MS B	SRR				SFR		PDR				CDR	DAB	PR																																								
Propulsion Plant																																																							
EMALS		SDD AWARD			SRR	SFR	PDR	CDR 1	CDR 2	TRR 1			TRR 2				LRIP																																						
DBR Radar Suite		PDR			CDR																																																		
Advanced Arresting Gear	SRR			PDR	MS B			CDR-1-2					TRR 1				TRR 2				MS C																																		
Test & Evaluation Milestones																																																							
Development Test	◇						DT A2						◇	◇		DT B1					◇	◇		DT B2				◇	◇		DT B3																								
Operational Test							OT B1	◇					◇		OT B2	◇	◇	OT B3	◇	◇	OT B4	◇						◇			OT B5	◇																							
Contract Milestones																																																							
IPPD Contract																																																							
CP Contract		Contract Award																																																					
Construction Contract																	Contract Award																																						
Full Funding (SCN)																	X																																						

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* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4a, Schedule Detail							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04				PROGRAM ELEMENT PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 4004 - EMALS	
Schedule Profile	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Developmental Tests DT A-2	1-4Q							
Advanced Arresting Gear SRR	1Q							
EMALS SDD Phase Initiate	2Q							
Dual Band Radar PDR	2Q							
CVN 21 Milestone B	3Q							
CVN 21 SRR	3Q							
Construction Preparation Contract Award	3Q							
Advanced Arresting Gear PDR	4Q							
EMALS SRR		1Q						
Developmental Tests DT A-2		1-4Q						
Dual Band Radar CDR		1Q						
Advanced Arresting Gear Milestone B		1Q						
Operational Tests OT-B1		2-3Q						
EMALS SFR		2Q						
CVN 21 SFR		3Q						
EMALSP PDR		3Q						
EMALS CDR 1		4Q						
Advanced Arresting Gear CDR 1		4Q						
CVN 21 PDR			1Q					
Developmental Tests DT A-2			1-4Q					
AAG CDR 2			1Q					
EMALS CDR 2			2Q					
EMALS TRR 1(HALT/HCT)			4Q					
CVN 21 CDR				1Q				
Developmental Tests DT-B1				1-4Q				
Operational Tests OT-B2				1-4Q				
CVN 21 DAB PR				2Q				
AAG TRR 1 (DT/OA)				2Q				
EMALS TRR 2 (DT/OA)				4Q				
CVN 21 Construction Contract Award					1Q			
CVN 21 SCN Full Funding					1Q			
Developmental Tests DT-B1					1-4Q			
Operational Tests OT-B3					1-4Q			
EMALS LRIP					4Q			
AAG TRR 2 (DT/OA)						1Q		
Developmental Tests DT-B1						1Q		
Operational Tests OT-B4						1-4Q		
Developmental Tests DT-B2						3-4Q		
Developmental Tests DT-B2							1-4Q	
AAG LRIP								1Q
Operational Tests OT-B5								1-4Q
Developmental Tests DT-B3								2-4Q

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603512N - Carrier Systems Development				PROJECT NUMBER AND NAME PU 4005 - Smart Carrier			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	1.836	1.825	1.831	1.820	1.828	1.823	1.863	1.903
RDT&E Articles Qty		2	1	1				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Smart Carrier Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs. Initial technologies include Aviation Fuels (JP-5) Automation, the Advanced Damage Control System (ADCS), Automated Material Handling Systems, Damage Control Inventory Management and Stowage System (DCIMSS), List Control, Firemain Control, Integrated Condition Assessment System, Interior Communications/Systems Monitoring Alarm Upgrades, and the Digital Video Surveillance System. Demonstration technologies include Aviation Fuels On-Board Training (OBT) System, Smart Vent, Machinery Online Monitoring, Superior Sound Technology, Flat Plane Speakers, Smart Circuit Breakers, Distilling Unit Automation, Reboiler Automation, In-line Aviation Fuels Sampling, Advanced Oil Purification System, Oil Monitoring Sensors, and Voice Interactive Display. Wireless systems, smart sensors, knowledge-based systems, automated casualty control, automated technology for workload reduction, linked smart devices, common software tools for interoperability, and self-healing network are technologies being considered for future applications. This project was previously funded under Project 42208, Future Carrier R&D.

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B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.836	1.825	1.831	1.820
RDT&E Articles Quantity		2	1	1
<p>- (U) Smart Carrier - Fiscal Year 2004 and 2005 efforts continue to develop, evaluate, demonstrate, install, test and measure the effectiveness of revised processes and selected technologies with the highest potential to meet Aircraft Carrier goals for manpower and Total Ownership Cost (TOC) reductions, such as HN&E LAN survivability modifications, an On-Board Training capability for Aviation Fuels Operations, In-Line Fuel Monitoring, Condition-Based Maintenance, and Automated Systems Logs. Fiscal Year 2006 and 2007 efforts include software development, land-based testing, shipboard start-up and shipboard demonstration of ADCS software improvements and Electronic Valve Operator automation. Future efforts include Superior Sound Technology (5MC), vibration monitoring/rotating machinery diagnostic tools, and expanded condition-based maintenance using the existing Smart Carrier hardware and software suite.</p>				

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005																								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 4005 - Smart Carrier																										
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. & Name</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2004</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2005</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2006</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2007</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2008</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2009</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2010</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2011</th> <th style="text-align: center; border-bottom: 1px solid black;">To Complete</th> <th style="text-align: center; border-bottom: 1px solid black;">Total Cost</th> </tr> </thead> <tbody> <tr> <td style="padding-top: 10px;">098100 Items Under \$5 million Smart Carrier (LT 140)</td> <td style="text-align: center; padding-top: 10px;">6.988</td> <td style="text-align: center; padding-top: 10px;">44.638</td> <td style="text-align: center; padding-top: 10px;">20.923</td> <td style="text-align: center; padding-top: 10px;">22.954</td> <td style="text-align: center; padding-top: 10px;">9.133</td> <td style="text-align: center; padding-top: 10px;">10.286</td> <td style="text-align: center; padding-top: 10px;">8.056</td> <td style="text-align: center; padding-top: 10px;">3.329</td> <td style="text-align: center; padding-top: 10px;">Cont.</td> <td style="text-align: center; padding-top: 10px;">126.307</td> </tr> </tbody> </table> <p style="margin-top: 20px;">E. ACQUISITION STRATEGY:</p> <p style="margin-top: 10px;">Investigate, demonstrate, and implement available technologies to deliver a robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment to reduce workload, manpower requirements, and Total Ownership Costs (TOC).</p> <p style="margin-top: 20px;">F. MAJOR PERFORMERS:</p> <p style="margin-top: 10px;">Naval Sea Systems Command - Philadelphia (formerly Naval Surface Warfare Center, Carderock Division), Philadelphia, PA and Naval Air Systems Command - Lakehurst (formerly Naval Air Warfare Center, Lakehurst), Lakehurst NJ, perform software development, test and evaluation, integration and program management to include training development and integrated logistics support development.</p>											Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost	098100 Items Under \$5 million Smart Carrier (LT 140)	6.988	44.638	20.923	22.954	9.133	10.286	8.056	3.329	Cont.	126.307
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost																						
098100 Items Under \$5 million Smart Carrier (LT 140)	6.988	44.638	20.923	22.954	9.133	10.286	8.056	3.329	Cont.	126.307																						

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603512N - Carrier Systems Development					PU 4005 - Smart Carrier						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development														
Ancillary Hardware Development														
Component Development														
Ship Integration	WX	NAVSEA, Phil./NAVAIR Lke	0.200	0.100	11/03	0.100	11/04	0.100	11/05	0.100	11/06	Continuing	Continuing	
Ship Suitability														
Systems Engineering	CPAF	NGNN, VA	0.205										0.205	
	Various	Miscellaneous	7.978										7.978	
Training Development														
Licenses														
Tooling														
GFE														
Award Fees														
Subtotal Product Development			8.383	0.100		0.100		0.100		0.100		0.000	8.783	
Development Support													0.000	
Software Development	WX	NAVSEA, Phil./NAVAIR Lke	1.042	0.886	11/03	0.825	11/04	0.881	11/05	0.820	11/06	Continuing	Continuing	
Training Development	WX	NAVSEA, Phil./NAVAIR Lke	0.050	0.050	11/03	0.080	11/04	0.050	11/05	0.080	11/06	Continuing	Continuing	
Integrated Logistics Support	WX	NAVSEA, Phil./NAVAIR Lke	0.100	0.150	11/03	0.120	11/04	0.150	11/05	0.120	11/06	Continuing	Continuing	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			1.192	1.086		1.025		1.081		1.020		0.000	5.404	

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 56 of 72)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE:						February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603512N - Carrier Systems Development					PU 4005 - Smart Carrier									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost *	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract			
Developmental Test & Evaluation	WX	NAVSEA, Phil./NAVAIR Lke	0.300	0.400	11/03	0.450	11/04	0.400	11/05	0.450	11/06	Continuing	Continuing				
Operational Test & Evaluation																	
Live Fire Test & Evaluation																	
Test Assets																	
Tooling																	
GFE																	
Award Fees																	
Subtotal T&E			0.300	0.400		0.450		0.400		0.450		0.000	2.000				
Contractor Engineering Support																	
Government Engineering Support																	
Program Management Support	WX	NAVSEA, Phil./NAVAIR Lke	0.250	0.250	11/03	0.250	11/04	0.250	11/05	0.250	11/06	Continuing	Continuing				
Travel																	
Labor (Research Personnel)																	
SBIR Assessment																	
Subtotal Management			0.250	0.250		0.250		0.250		0.250		0.000	1.250				
Total Cost			10.125	1.836		1.825		1.831		1.820		0.000	17.437				

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 57 of 72)

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EXHIBIT R-4, Schedule Profile																	DATE:															
February 2005																																
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																			
RDT&E, N/BA-4					0603512N - Carrier Systems Development								PU 4005 - Smart Carrier																			
	FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
In-Line Fuel Sampling																																
Mission-Ready Sensor Development																																
Mission-Ready Sensor Land-Based Testing																																
Mission-Ready Sensor Carrier Testing																																
System Development and Carrier Demonstration																																
Engineering Development Model																																
Carrier Machinery Control Systems:																																
Software Development, Integration & Test for:																																
HM&E LAN																																
Aviation Fuels Automation On-Board Training																																
Condition-Based Maintenance																																
Automated System Logs																																
ADCS Software Improvements (AFSSS & FCCS)																																
Electronic Valve Operator Automation																																
Superior Sound Technology (5MC)																																
Vibration Monitoring/Rotating Machinery Diagnostic Tools																																
Expanded Condition-Based Maintenance																																
Reboiler Automation																																
Liquid Load Management																																
Advanced Fire and Smoke Sensors																																

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Exhibit R-4, Schedule Profile
(Exhibit R-4, Page 38 of 46)

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 58 of 72)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT& BA-04	PE 0603512N - Carrier Systems Development				PU 4005 - Smart Carrier			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
In-Line Fuel Sampling								
Mission Ready Sensor Development Testing	1Q							
Mission Ready Sensor Land-Based Testing	1-3Q							
Mission Ready Sensor Carrier Testing (single sensor, during deployment)	3-4Q	1Q						
System Development and Carrier Demonstration (Multi-Sensor System)		1-4Q						
Sensor Group Development - Six Sensors (HW & SW)		1-2Q						
Group Development Test		3-4Q						
Engineering Development Model			1-4Q	1Q				
Sensor System Development (HW & SW)			1-3Q					
System Development Test			4Q	1Q				
Carrier Machinery Control Systems								
HM&E Local Area Network Survivability Mods - Phase II Development and Test	1-3Q							
Aviation Fuels On-Board Training Software Development	1-3Q							
Aviation Fuels On-Board Training Software Development Test	4Q	1Q						
Condition-Based Maintenance Software Development	1-4Q							
Condition-Based Maintenance Software Development Test		1-3Q						
Automated System Logs Software Development		1-4Q						
Automated System Logs Software Development Test			1-3Q					
ADCS Software Improvements (AFSSS/FCCS) Software Development			2-4Q	1Q				
ADCS Software Improvements (AFSSS/FCCS) Software Development Test				2-4Q	1Q			
Electronic Valve Operator Automation Software Development				1-4Q	1Q			
Electronic Valve Operator Automation Software Development Test					2-4Q			
Superior Sound Technology (5MC) Development/Integration					2-4Q	1-3Q		
Vibration Monitoring/Rotating Machinery Diagnostic Tools SW Development						2-4Q	1-2Q	
Vibration Monitoring/Rotating Machinery Diagnostic Tools SW Dev. Test							3-4Q	1-3Q
Expanded Condition-Based Maintenance - Rotating Machinery						3-4Q	1-3Q	
Reboiler Automation SW/HW Development							2-4Q	
Reboiler Automation SW/HW Development Test								1Q
Liquid Load Management SW Development/Test							3-4Q	1-3Q
Advanced Fire and Smoke Sensor System Development								2-3Q
Advanced Fire and Smoke Sensor System Development Testing								4Q

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04		PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development			PROJECT NUMBER AND NAME PU 4006 - CVN 21 Follow Ship				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost	0.000	0.000	0.000	78.947	82.850	82.969	85.527	40.727	
RDT&E Articles Qty									
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Development and related testing of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 79. This project provides for the development of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project transitions the most promising technologies from the Navy technology base, other government laboratories, and the private sector into specific advanced development efforts. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 79 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.									

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 4006 - CVN 21 Follow Ship		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	43.060
RDT&E Articles Quantity				
<p>- (U) CVN 21 Follow Ship Advanced Technology Design & Development: Commence development and transition of technologies to support continued improvements in CVN 21 Key Performance Parameters (KPPs) and efforts supporting achievement of CVN 21 Class Operational Requirements Document (ORD) Objectives: increased sortie generation rate, manpower reduction, and recovery of weight and stability service life margins. Commence design activities to integrate and optimize systems and arrangements to improve KPPs and to improve overall performance towards ORD objectives. Technologies and design efforts include, but are not limited to: Enhanced Weapons / Material Movement to further reduce manpower and increase sortie generation rates; Advanced Materials development and integration to reduce total weight and improve stability while reducing shipboard maintenance; Consolidated Electrical Energy Storage and Advanced Electrical Load Management to improve power density, reduce weight, and support advanced electrical loads; Improved Survivability technologies; and Advanced Ship Self Defense technologies.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	3.850
RDT&E Articles Quantity				
<p>- (U) CVN 21 Follow Ship Testing: Initiate efforts to determine specific developmental test and related modeling and simulation requirements. Assess the CVN 79 hull design survivability in terms of susceptibility, vulnerability and recoverability. Initiate planning of UNDEX, AIREX, Damage Control/Fire Fighting and Recoverability modeling and simulation and plan surrogate testing for model validation. Commence CVN 79 susceptibility assessment. Commence UNDEX, AIREX, Damage Control/Fire Fighting and Recoverability modeling and simulation. Commence surrogate testing of models. Continue CVN 79 susceptibility assessment and continue initiating and validating any additional modeling deemed necessary.</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME PE 0603512N - Carrier Systems Development	PROJECT NUMBER AND NAME PU 4006 - CVN 21 Follow Ship																	
B. Accomplishments/Planned Program <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">32.037</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>- (U) CVN 21 Follow Ship Total Ship Integration: The CVN 79 will incorporate advanced technologies including, but not limited to: Enhanced Weapons / Material Movement to further reduce manpower and increase sortie generation rates; Advanced Materials development and integration to reduce total weight and improve stability while reducing shipboard maintenance; Consolidated Electrical Energy Storage and Advanced Electrical Load Management to improve power density, reduce weight, and support advanced electrical loads; Improved Survivability technologies; and Advanced Ship Self Defense technologies. These technologies support continued improvement in CVN 21 class Key Performance Parameters (KPPs) and efforts supporting achievement of CVN 21 class Operational Requirements Document (ORD) Objectives: increased sortie generation rate, manpower reduction, and recovery of weight and stability service life margins.</p> <p>CVN 79 Total Ship Integration (TSI) will be accomplished through an IPPD contract with Northrop Grumman Newport News to incorporate technology advancements into the CVN 21 baseline design. TSI efforts are focused on continued design activities that integrate and optimize systems arrangements to improve KPPs and overall performance towards ORD objectives. CVN 79 design efforts will resolve issues related to incorporation of new technologies, the development of the CVN 79 contract data package, including design drawings and specifications, and will provide required program management and logistics support.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	32.037	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	32.037															
RDT&E Articles Quantity																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																																															
RDT&E, N / BA-04	PE 0603512N - Carrier Systems Development	PU 4006 - CVN 21 Follow Ship																																															
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 10%;">FY 2004</th> <th style="text-align: right; width: 10%;">FY 2005</th> <th style="text-align: right; width: 10%;">FY 2006</th> <th style="text-align: right; width: 10%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">78.947</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">78.947</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td style="padding-left: 20px;">Programmatic Adjustment</td> <td></td> <td></td> <td></td> <td style="text-align: right;">79.601</td> </tr> <tr> <td style="padding-left: 20px;">Other Adjustments</td> <td></td> <td></td> <td></td> <td style="text-align: right;">-0.654</td> </tr> <tr> <td style="padding-top: 10px;">Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">78.947</td> </tr> </tbody> </table>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					FY05 President's Budget	0.000	0.000	0.000	0.000	FY06 President's Budget	0.000	0.000	0.000	78.947	Total Adjustments	0.000	0.000	0.000	78.947	Summary of Adjustments					Programmatic Adjustment				79.601	Other Adjustments				-0.654	Subtotal	0.000	0.000	0.000	78.947
	FY 2004	FY 2005	FY 2006	FY 2007																																													
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Other Adjustments				-0.654																																													
Subtotal	0.000	0.000	0.000	78.947																																													
<p>Remarks:</p> <p>Schedule:</p> <p style="margin-left: 20px;">The CVN 78 Basic Construction contract will be awarded in FY08 with delivery in FY15. The CVN 79 Basic Construction contract will be awarded in FY12.</p> <p>Technical:</p> <p style="margin-left: 20px;">Not Applicable</p>																																																	

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:		
								February 2005		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N / BA-04		PE 0603512N - Carrier Systems Development			PU 4006 - CVN 21 Follow Ship					
D. OTHER PROGRAM FUNDING SUMMARY:										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Complete	Total Cost
SCN: 200100 - Carrier Replacement Program	1,162.905	623.551	564.913	795.994	3,689.413	3,730.407	1,657.362	539.680	Cont.	Cont.
RDT&E:										
0604567N - Ship Contract Design, Live Fire T&E	112.730	136.516	55.672	86.506	83.826	59.393	40.082	87.499	Cont.	Cont.
0603570N - Advanced Nuclear Power Systems	198.814	168.080	168.373	170.980	160.992	152.814	133.951	105.975	Cont.	Cont.
*Note: Only a portion of the funding in PE 0603570N is included in the CVN 21 Program										
E. ACQUISITION STRATEGY:										
The CVN 78 will be the first ship of the CVN 21 class of aircraft carriers consisting of 12 ships. Due to the length and cost of construction, each carrier will be contracted for separately. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the Nimitz Class. Additionally, the following warfighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.										
F. MAJOR PERFORMERS:										
Northrop Grumman Newport News, Newport News, VA, Design/Component Development/Construction Naval Surface Warfare Center, Carderock, MD, Technology Design & Development Naval Surface Warfare Center, Dahlgren, Virginia, Technology Design & Development										

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 65 of 72)

R-1 SHOPPING LIST - Item No. 38

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-04			PE 0603512N - Carrier Systems Development			PU 4006 - CVN 21 Follow Ship								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
CVN 21 Follow Ship	CPAF	NGNN, VA	0.000							0.300	11/06	Continuing	Continuing	
	Various	Miscellaneous	0.000							0.299	11/06	Continuing	Continuing	
Operational Test & Evaluation														
CVN Follow Ship														
Live Fire Test & Evaluation														
CVN 21 Follow Ship	CPAF	NGNN, VA	0.000							0.486	11/06	Continuing	Continuing	
	WX	NSWC Carderock	0.000							1.026	11/06	Continuing	Continuing	
Test Assets	Various	Miscellaneous	0.000							1.739	11/06	Continuing	Continuing	
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000		0.000		0.000		3.850		Continuing	Continuing	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel														
Transportation														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		Continuing	Continuing	
Remarks:														
Total Cost			0.000	0.000		0.000		0.000		78.947		Continuing	Continuing	
Remarks:														

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:									
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												February 2005									
RDT&E, N / BA-04												PE 0603512N - Carrier Systems Development												PU 4006 - CVN 21 Follow Ship									
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Acquisition Milestones		MS B ▲	SRR ▲				SFR ▲		PDR ▲				CDR ▲	DAB ▲	PR																		
Propulsion Plant																																	
EMALS		SDD AWARD ▲			SRR ▲	SFR ▲	PDR ▲	CDR 1 ▲	CDR 2 ▲	TRR 1 ▲			TRR 2 ▲						LRIP ▲														
DBR Radar Suite		PDR ▲			CDR ▲																												
Advanced Arresting Gear	SRR ▲			PDR ▲	MS B ▲			CDR-1-2 ▲					TRR 1 ▲						TRR 2 ▲					MS C ▲									
Test & Evaluation Milestones																																	
Development Test	◆						DT A2					◆	◆		DT B1					◆	◆		DT B2				◆	◆		DT B3			
Operational Test							OT B1	◆					◆		OT B2	◆	◆		OT B3	◆	◆		OT B4	◆				◆			OT B5	◆	
Contract Milestones																																	
IPPD Contract																																	
CP Contract		Contract Award ▲																															
Construction Contract																			Contract Award ▲														
Full Funding (SCN)																			X														

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* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4a, Schedule Detail							DATE:		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E, N / BA-04		PE 0603512N - Carrier Systems Development				PU 4006 - CVN 21 Follow Ship			
Schedule Profile	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	
Developmental Tests DT A-2	1-4Q								
Advanced Arresting Gear SRR	1Q								
EMALS SDD Phase Initiate	2Q								
Dual Band Radar PDR	2Q								
CVN 21 Milestone B	3Q								
CVN 21 SRR	3Q								
Construction Preparation Contract Award	3Q								
Advanced Arresting Gear PDR	4Q								
EMALS SRR		1Q							
Developmental Tests DT A-2		1-4Q							
Dual Band Radar CDR		1Q							
Advanced Arresting Gear Milestone B		1Q							
Operational Tests OT-B1		2-3Q							
EMALS SFR		2Q							
CVN 21 SFR		3Q							
EMALSP PDR		3Q							
EMALS CDR 1		4Q							
Advanced Arresting Gear CDR 1		4Q							
CVN 21 PDR			1Q						
Developmental Tests DT A-2			1-4Q						
AAG CDR 2			1Q						
EMALS CDR 2			2Q						
EMALS TRR 1(HALT/HCT)			4Q						
CVN 21 CDR				1Q					
Developmental Tests DT-B1				1-4Q					
Operational Tests OT-B2				1-4Q					
CVN 21 DAB PR				2Q					
AAG TRR 1 (DT/OA)				2Q					
EMALS TRR 2 (DT/OA)				4Q					
CVN 21 Construction Contract Award					1Q				
CVN 21 SCN Full Funding					1Q				
Developmental Tests DT-B1					1-4Q				
Operational Tests OT-B3					1-4Q				
EMALS LRIP					4Q				
AAG TRR 2 (DT/OA)						1Q			
Developmental Tests DT-B1						1Q			
Operational Tests OT-B4						1-4Q			
Developmental Tests DT-B2						3-4Q			
Developmental Tests DT-B2							1-4Q		
AAG LRIP								1Q	
Operational Tests OT-B5								1-4Q	
Developmental Tests DT-B3								2-4Q	

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 68 of 72)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603512N Carrier Systems Development			PROJECT NUMBER AND NAME 1723 CV Launch and Recovery Systems			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	4.679	0.077	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	2							
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>This project addresses the development of systems providing approach and landing guidance, recovery, service, support, and launch of aircraft operating on or from ships. Payoffs include increased safety, greater sortie generation rates, enhanced aircraft boarding rates, reduced manning, and increased aircraft service life. Specific programs include:</p> <ul style="list-style-type: none"> - (U) Advanced Recovery Control (ARC) System: The ARC system development effort will replace the existing control valve and valve actuation control system on the MK7 arresting gear, providing enhanced performance, improved reliability and maintainability, and restoring operational margins of safety. - (U) Cost Reduction Effective Improvement Initiative (CREI) Arresting Gear Fairlead Sheaves: This program seeks to replace the arresting gear fairlead drive system sheaves with a more durable product that will have a longer service life, thus decreasing system life cycle costs. 								

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603512N Carrier Systems Development	PROJECT NUMBER AND NAME 1723 CV Launch and Recovery Systems		
(U) B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	4.552			
RDT&E Articles Quantity	2			
<div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> - (U) ARC - Developed ARC System Specification, contract Statement of Work, and Request for Proposal. Conducted source selection process, completed Milestone B review and awarded development contract. Conducted testing to characterize existing Constant Run Out Valve (CROV) performance in support of ARC control system development. Completed System Requirements Review, Preliminary Design Review, Critical Design Review and fabricated/delivered two (2) test articles. Conducted developmental testing of test articles on arresting gear. Conducted development testing using deadloads at the Jet Car Track Site (JCTS) and aircraft at the Runway Arrested Landing Site (RALS). Conducted rapid cycle reliability testing and environmental testing. Complete Tech Evaluation and achieve Milestone C. Provide engineering and management support to the program. Purchased two production representative ARC test articles to support developmental testing. </div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.127	0.077		
RDT&E Articles Quantity				
<div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> - (U) CREI - (Arresting Gear Fairlead Sheaves) - Selected candidate materials and conducted laboratory testing on samples. Award contract, conduct design and manufacture prototype of CREI Sheaves. Conduct developmental and environmental testing of prototype sheaves. Provide engineering and management support to the program. </div>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																									
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603512N Carrier Systems Development	PROJECT NUMBER AND NAME PU 1723 CV Launch and Recovery Systems																																										
<p>(U) C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: right;"><u>FY 2004</u></th> <th style="width: 10%; text-align: right;"><u>FY 2005</u></th> <th style="width: 10%; text-align: right;"><u>FY 2006</u></th> <th style="width: 10%; text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">1.170</td> <td style="text-align: right;">0.077</td> <td></td> <td></td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">4.679</td> <td style="text-align: right;">0.077</td> <td></td> <td></td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">3.509</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td>Reprogrammings</td> <td style="text-align: right;">3.509</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">3.509</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Schedule:</p> <p style="margin-top: 20px;">(U) Technical: Not Applicable</p>						<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Funding:					FY05 President's Budget	1.170	0.077			FY06 President's Budget	4.679	0.077			Total Adjustments	3.509	0.000	0.000	0.000	Summary of Adjustments					Reprogrammings	3.509				Subtotal	3.509	0.000	0.000	0.000
	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>																																								
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005																									
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603512N Carrier Systems Development			PROJECT NUMBER AND NAME PU 1723 CV Launch and Recovery Systems																										
<p>(U) D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. & Name: 4216</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2004</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2005</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2006</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2007</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2008</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2009</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2010</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2011</th> <th style="text-align: right; border-bottom: 1px solid black;">To Complete</th> <th style="text-align: right; border-bottom: 1px solid black;">Total Cost Cont</th> </tr> </thead> <tbody> <tr> <td>OPN BLI: 421600- Aircraft Launch & Recovery Equipment</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">4.295</td> <td style="text-align: right;">4.424</td> <td style="text-align: right;">7.489</td> <td style="text-align: right;">8.690</td> <td style="text-align: right;">9.093</td> <td style="text-align: right;">9.133</td> <td style="text-align: right;">9.253</td> <td style="text-align: right;">2.500</td> <td></td> </tr> </tbody> </table> <p>(U) E. ACQUISITION STRATEGY:</p> <p>The ARC acquisition strategy calls for full and open competition leading to a single contract award for the System Development and Demonstration Phase. Production quantities are included as options to the development contract.</p> <p>CREI A/G Fairlead Sheaves: The A/G Fairlead Sheave Development effort will be competitively awarded to industry to develop sample materials and perform laboratory testing for resistance.</p> <p>Based on the results of the testing, one material and heat treatment process will be selected and prototype sheaves manufactured and tested on two arresting gear engines at NAVAIR</p>											Line Item No. & Name: 4216	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost Cont	OPN BLI: 421600- Aircraft Launch & Recovery Equipment	0.000	4.295	4.424	7.489	8.690	9.093	9.133	9.253	2.500	
Line Item No. & Name: 4216	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost Cont																						
OPN BLI: 421600- Aircraft Launch & Recovery Equipment	0.000	4.295	4.424	7.489	8.690	9.093	9.133	9.253	2.500																							

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4			R-1 ITEM NOMENCLATURE 0603513N/Shipboard System Component Development					
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	35.425	45.254	22.150	16.420	19.271	19.535	19.780	19.942
2465/DC/Survivability	5.965	6.082	4.265	2.127	2.120	2.146	2.181	2.205
2468/Undersea Warfare (USW)	1.521	1.653	3.448	1.473	0.000	0.000	0.000	0.000
2469/ Open Systems Architecture (OSA)	3.420	3.430	2.512	1.997	2.038	2.072	2.116	2.156
2470/Integrated Topside Design (ITD)	3.475	3.554	2.691	0.535	0.519	0.523	0.534	0.538
2471/Integrated Power Systems (IPS)	4.968	4.091	9.234	8.496	7.597	7.651	7.655	7.598
2858/MTTC/IPI	8.653	5.942	0.000	0.000	0.000	0.000	0.000	0.000
4019/Radar Upgrades	0.000	0.000	0.000	1.792	6.997	7.143	7.294	7.445
9038/Automated Maintenance Environment	2.322	2.575	0.000	0.000	0.000	0.000	0.000	0.000
9183/Electro-Magnetic Launcher	0.967	1.485	0.000	0.000	0.000	0.000	0.000	0.000
9185/Airbag Technology	1.482	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9350/Circuit Breakers	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9351/Power & Propulsion Technologies	1.691	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9517/Amorphous Metal Permanent Magnet Gen Set	0.000	1.485	0.000	0.000	0.000	0.000	0.000	0.000
9518/Carbon Foam	0.000	4.160	0.000	0.000	0.000	0.000	0.000	0.000
9519/ DDX Ship Systems Power Electronics Tech	0.000	1.388	0.000	0.000	0.000	0.000	0.000	0.000
9520/Galley Food Waste Disposal System	0.000	0.991	0.000	0.000	0.000	0.000	0.000	0.000
9521/Intelligent Systems Consortium Initiative	0.000	1.485	0.000	0.000	0.000	0.000	0.000	0.000
9522/Shipboard Personal Locator Beacon	0.000	2.278	0.000	0.000	0.000	0.000	0.000	0.000
9523/Shipboard Use of Alt Composition Pipes	0.000	1.684	0.000	0.000	0.000	0.000	0.000	0.000
9524/Shipboard Wireless Maintenance Assistant	0.000	2.971	0.000	0.000	0.000	0.000	0.000	0.000

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4	R-1 ITEM NOMENCLATURE 0603513N/Shipboard System Component Development	
<p>A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE funds the development of shipboard system components and technologies for the future surface combatant family of ships and focuses on the following efforts: (1) development of DD(X) specific and future surface combatant survivability and damage control/firefighting systems and features that reduce vulnerability against weapons, (2) demonstration and validation of technology through build-test-build process for surface sonar and combat system application, (3) implements modular standard open systems architecture at the total ship/system level and supports reduced manning efforts through automation, (4) develops technologies to achieve a total integrated topside design focused on DD(X) and other future surface ships, (5) supports the Integrated Power System effort that provides total ship electric power, including electric propulsion, power conversion and distribution, combat system and mission load interfaces to the electric power system and (6) future upgrades/technology insertion efforts for the Dual Band Radar (DBR) system.</p> <p>The following FY 2004-2005 Congressional adds, identified in separate projects on the R-2, are contained in this Program Element:</p> <p>-McConnell Technology Transition Center/Innovative Productivity, Inc (MTTC/IPI). Funds studies that allow the Navy, DoD, government, laboratories, universities, and industry to identify innovative technologies, processes and concepts that can help Navy activities and contractors, while reducing operating costs and increasing product quality. Incorporated into MTTC/IPI is the Center of Excellence for Naval Propulsors which funds the development of casting and manufacturing improvements for large Navy propellers and propulsors.</p> <p>-Automated Maintenance Environment (AME). Effort focuses on connecting ships in a battle group with a shore-based facility for routing to support services.</p> <p>-Electro-Magnetic Launcher (EML). Demonstrates the feasibility of a kinetic energy electromagnetic rail gun.</p> <p>-Airbag Technology. Focuses on the development and evaluation of replacing the current high-pressure air system used to launch over-the-side torpedoes with commercial off the shelf automobile air bag inflators for launch energy.</p> <p>-Circuit Breakers. Funds the development and qualification of a second source for Navy AQB-type circuit breakers with root-mean-square (RMS) current sensing electronic trip units and remote communication capability.</p> <p>-Power and Propulsion Technologies. Conducts modeling and simulation in some additional areas of Navy interest and is linked to the Integrated Fight Through Power (IFTP) concept. Additionally, funds will be applied to enhanced risk reduction efforts associated with survivable Integrated Power System (IPS) architectures.</p> <p>-Amorphous Metal Permanent Magnet Generator. Funds conceptual and preliminary designs of an Amorphous Metal Permanent Magnet Generator Set.</p> <p>-Carbon Foam. Funds to explore uses for lightweight, strong, fire resistant and thermally insulating carbon foam material aboard Navy ships.</p> <p>-DD(X) Ship System Power Electronics Technology. Funds development and demonstration of high power switch and conversion equipment technology, manufacturing methods and processes.</p> <p>-Galley Food Waste Disposal System. Develops new pollution control equipment and systems that will enable Navy compliance with environmental regulations and other identified issues for disposal of shipboard food waste.</p> <p>-Intelligent Systems Consortium (ISC). This effort focuses on the development of intelligent shipboard electro-mechanical devices in support of the Navy's all-electric ship concept, reduces manning requirements and future sea basing needs.</p> <p>-Shipboard use of Alternative Composition Pipes. Facilitates the testing, evaluation and certification of alternative composition low-cost piping for use in Navy ships.</p> <p>-Shipboard Wireless Maintenance Assistant (SWMA). Funds the continued development of an integrated, wireless collaboration tool for Navy ship organizational maintenance personnel.</p> <p>-Shipboard Personal Locator Beacon. Funds the development and demonstration of a method by which to monitor the location of individual sailors throughout a ship.</p>		

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2465/DC/Survivability			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	5.965	6.082	4.265	2.127	2.120	2.146	2.181	2.205
RDT&E Articles Qty	0	0	0	0	0	0	0	0
<p>A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project funds development of DD(X) specific and future surface combatant survivability and damage control (DC)/ firefighting systems and features that reduce vulnerability against weapons (e.g., missiles, mines, torpedoes) and enables effective recovery of mission capability under reduced manning conditions. Additionally, this project supports development of systems that reduce susceptibility to magnetic and acoustic influence mines. The requirements for this project are based on the need to develop affordable, balanced survivability designs that address recent wartime lessons learned and emerging and future threats.</p> <p>(U) System development areas include: 1) automated degaussing control system that maintains a reduced, constant electromagnetic signature level for an extended deployment and provides on-board, real-time, tactical information on safe operating areas; 2) underwater explosion, shock isolation systems that use rafting and advanced mounts to provide increased survivability while operating in littoral environments; 3) ship design modeling and simulation program that predicts the vulnerability and recoverability response time of the ship, systems, and crew to primary and secondary weapons effects 4) advanced DC and auxiliary system architectures and control methods that enable automated isolation, reconfiguration and fire suppression actions after damage; and 5) low cost ship shock testing methods that eliminate the need for costly environmental assessments and at-sea measures.</p>								

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 3 of 51)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2465/DC/Survivability																																															
B. Accomplishments/Planned Program																																																	
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.064</td> <td>1.000</td> <td>1.440</td> <td>0.800</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>(U) In FY 04, conducted tests to determine the fault susceptibility of 13.8 KV switch gear to water mist; developed switch gear control system doctrine that defines if power must be secured prior to activation of the water mist fire suppression system. In FY 04 through FY 07, develop fault isolation control system approaches for 13.8KV electrical systems that prevent peacetime arcing faults within switchgear and approaches for rapidly isolating bus level combat induced faults; identify fault isolation approaches and initiate live ordnance testing in FY 04. Continue live ordnance testing in FY 05 through FY 06 and finalize control system approach in FY07.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.664</td> <td>1.300</td> <td>0.732</td> <td>0.502</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>(U) In FY 04 through FY 05, develop survivable control system architectures that provide a cost effective, redundant communications path after blast or fire damage to the network; in FY 04 developed a control system platform for demonstrating the performance of alternative computing architectures. In FY 06 and FY 07 complete testing and transition to the DD(X) program.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.700</td> <td>0.843</td> <td>0.300</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>(U) In FY 04, conducted an underwater explosion shock test employing a raft, prototype shock mount and representative electronic equipment to demonstrate equipment survivability. For FY 05, develop low-cost, portable shock testing devices for rapidly shock qualifying commercial off the shelf (COTS) equipment; initiate demonstrations on the ability of the devices to replicate the shock environment and conduct tests using representative COTS equipment. In FY 06 complete demonstrations and transition to acquisition programs.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.064	1.000	1.440	0.800	RDT&E Articles Quantity	0	0	0	0		FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.664	1.300	0.732	0.502	RDT&E Articles Quantity	0	0	0	0		FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.700	0.843	0.300	0.000	RDT&E Articles Quantity	0	0	0	0
	FY 04	FY 05	FY 06	FY 07																																													
Accomplishments/Effort/Subtotal Cost	1.064	1.000	1.440	0.800																																													
RDT&E Articles Quantity	0	0	0	0																																													
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RDT&E Articles Quantity	0	0	0	0																																													
	FY 04	FY 05	FY 06	FY 07																																													
Accomplishments/Effort/Subtotal Cost	0.700	0.843	0.300	0.000																																													
RDT&E Articles Quantity	0	0	0	0																																													

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2465/DC/Survivability		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.415	1.769	1.793	0.825
RDT&E Articles Quantity	0	0	0	0
<p>(U) In FY 04, completed closed loop degaussing system rangings to monitor stability of control algorithm/ system aboard the USS HIGGINS, DDG 76. For FY 04 through FY 07, develop a software upgrade for the closed loop degaussing system that provides for a low signature during ship rolling conditions by compensating for eddy currents ; developed control algorithm and initiated scaled model testing in FY 04. Conduct full scale rangings in FY 05 through FY 07.</p> <p>For FY 04 through FY 06, develop a real-time tactical decision aid that provides safe operating areas as a function of mine threat ; initiated coding in FY 04. Complete prototype code development in FY 05 and conduct fleet evaluation in FY 06.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.822	0.570	0.000	0.000
RDT&E Articles Quantity	0	0	0	0
<p>(U) In FY 04 conducted verification and validation and developed new weapons effect and recoverability models. In FY 05 complete development and transition to acquisition programs.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.300	0.600	0.000	0.000
RDT&E Articles Quantity	0	0	0	0
<p>(U) For FY 04 developed a conceptual environmentally safe shock testing approach for conducting at-sea, or pier side ship shock trials that eliminate the need for costly environmental impact assessments and at-sea measures; conducted scaled demonstrations tests including use of innovative approaches for focusing the energy from conventional explosives in one direction. For FY 05, complete testing and transition of environmentally safe shock testing.</p>				

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EXHIBIT R-2a, RDT&E Project Justification				DATE:																																									
				February 2005																																									
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME																																									
RDT&E, N / BA-4		0603513N/Shipboard System Component Development		2465/DC/Survivability																																									
<p>C. (U) PROGRAM CHANGE SUMMARY:</p> <table> <tr> <td>(U)Funding:</td> <td>FY 2004</td> <td>FY 2005</td> <td>FY 2006</td> <td>FY 2007</td> </tr> <tr> <td>FY 2005 President's Budget</td> <td>6.443</td> <td>6.142</td> <td>4.032</td> <td>1.952</td> </tr> <tr> <td>FY 2006 President's Budget</td> <td>5.965</td> <td>6.082</td> <td>4.265</td> <td>2.127</td> </tr> <tr> <td>Total Adjustments</td> <td>-0.478</td> <td>-0.060</td> <td>0.233</td> <td>0.175</td> </tr> </table> <table> <tr> <td>(U)Summary of Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Congressional undistributed reductions</td> <td>-0.072</td> <td>-0.059</td> <td></td> <td></td> </tr> <tr> <td>Miscellaneous Minor Adjustments</td> <td>-0.406</td> <td>-0.001</td> <td>0.233</td> <td>0.175</td> </tr> <tr> <td>Subtotal</td> <td>-0.478</td> <td>-0.060</td> <td>0.233</td> <td>0.175</td> </tr> </table> <p>(U)Schedule:</p> <p>Not Applicable</p> <p>(U)Technical:</p> <p>Not Applicable</p>						(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007	FY 2005 President's Budget	6.443	6.142	4.032	1.952	FY 2006 President's Budget	5.965	6.082	4.265	2.127	Total Adjustments	-0.478	-0.060	0.233	0.175	(U)Summary of Adjustments					Congressional undistributed reductions	-0.072	-0.059			Miscellaneous Minor Adjustments	-0.406	-0.001	0.233	0.175	Subtotal	-0.478	-0.060	0.233	0.175
(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007																																									
FY 2005 President's Budget	6.443	6.142	4.032	1.952																																									
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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 7 of 51)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603513N/Shipboard System Component Development			2465/DC/Survivability								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPAF	DD(X) Design Agent	1.500	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.500	
Ancillary Hardware Development														
Product Development	WX	NSWC CD Bethesda, MD	12.411	5.790	12/03	6.082	12/04	4.215	12/05	2.077	12/06	CONT	CONT	
	Various	Other Contractors	5.251	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Ship Integration														
Ship Suitability														
Systems Engineering														
Training Development														
Licenses														
Tooling														
GFE														
Award Fees														
Subtotal Product Development			19.162	5.790		6.082		4.215		2.077		CONT	CONT	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000				0.000		0.000	0.000	
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603513N/Shipboard System Component Development			2465/DC/Survivability								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000				0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support	GSA/FFP	Anteon Arlington, VA	0.234	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.234	
	C/TBD	Seaport, NAVSEA	0.000	0.000	N/A	0.000	N/A	0.050	12/05	0.050	12/06	CONT	CONT	
Government Engineering Support	VAR	Othe Gov't Activities	0.590	0.175	Various	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Program Management Support	WX	NSWC CD Bethesda, MD	0.075	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.075	
Travel														
Labor (Research Personnel)	CPFF	Various	0.121	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
SBIR Assessment														
Subtotal Management			1.020	0.175		0.000		0.050		0.050		CONT	CONT	
Remarks:														
Total Cost			20.182	5.965		6.082		4.265		2.127		CONT	CONT	
Remarks:														

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																DATE:		February 2005																
APPROPRIATION/BUDGET / PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME																						
RDT&E, N / BA-4												0603513N/Shipboard System Component Development 2465/DC/Survivability																						
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4						
Non-ACAT Engineering Milestones																																		
Survivable 13.8KV Electrical Systems	13.8KV Water Mist Test				Transition to DD (X) Program																													
	13.8 KV Electrical System Fault Isolation System Dev												Transition to DD (X) Program																					
Automated Fire Suppression System																																		
	Survivable Control System Development												Transition to DD (X) Program																					
Shock Isolation Systems	Raft Test				Testing Device Dev								Transition to DD (X) Program																					
Closed Loop Degaussing System	USS HIGGINS Demo				Transition to DD (X) Program																													
	Control Algorithm Development								Demonstrations/ Rangings								Transition to LPD-17, DD (X)/ Programs																	
Real-Time Tactical Decision	Software Development								Fleet Evaluation				Transition to DD (X)/LPD 17 Programs																					
Closed Loop Deamping																	Closed Loop Deamping Software Development																	
ASAP	V&V / New Weapons Effects Models								Transition to DD (X) Program																									
Envrionmentally Safe Ship Shock Testing Methods									Transition to DD (X) Program																									

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Exhibit R-4a, Schedule Detail					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2465/DC/Survivability			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
13.8KV Water Mist Tests	4Q							
13.8KV Peactime Fault Isolation Approaches	2Q							
13.8KV Fault Characterization Tests		2Q						
13.8 KV Bus Level Fault Isolation Approaches		2Q						
13.8KV Bus Level Fault Testing		4Q	3Q					
13.8 KV Conrol System Approaches				3Q				
Control System Demonstration Platform	4Q							
Survivable Control System Software	4Q	2Q						
Survivable Control System Testing		3Q	4Q	2Q				
Electronics Space Raft Test	4Q							
Low Cost COTS Qualification Test Devices		4Q						
Low Cost COTS Qualification Test Demonstrations			3Q					
Closed Loop Degaussing Rangings	2Q-4Q							
Eddy Current Compensation Control Algorithm	3Q							
Eddy Current Demonstrations		4Q	4Q	4Q				
Tactical Decision Aid Requirements	3Q							
Tactical Decision Aid Prototype Code		4Q						
Tactical Decision Aid Fleet Evaluation			4Q					
De-Amping System Prototype Design						4Q		
De-Amping System Control Algorithm								4Q
ASAP V&V	4Q							
ASAP Recoverability/ New Weapons Effects models		4Q						
Alternative Shock Test Method Scale Demonstrations	4Q							
Environmental Test Method Transition		4Q						

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 11 of 51)

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EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2468/Undersea Warfare			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	1.521	1.653	3.448	1.473	0.000	0.000	0.000	0.000
RDT&E Articles Qty	0	0	0	0	0	0	0	0
A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Undersea Warfare (USW) project provides advanced development demonstration and validation of technology through a build-test-build process for potential surface sonar and combat system application. Efforts focus on resolution of technical issues associated with providing capability against the year 2010 and beyond threat with emphasis on shallow water/littoral area USW and on Demonstration and Validation (DEM/VAL) of DD(X) Integrated Undersea Warfare (IUSW-21) Advanced Development Model (ADM). The key technology areas being investigated include: (1) improvements in signal processing, (2) advanced information processing, (3) multi-sensor data fusion, (4) towed array technology, (5) hull array technology and (6) transducer technology to improve target detection and classification performance and reduce system manning requirements for anti-submarine, torpedo defense and in-stride mine avoidance. Current and future efforts focus on major technological and performance thrusts for DD(X) USW, which will define surface combatant USW capability for the Navy in the next century. These efforts will continue beyond DD(X) and provide improvements that apply across surface ship USW platforms.								

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2468/Undersea Warfare																																															
B. Accomplishments/Planned Program																																																	
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	FY 04	FY 05	FY 06	FY 07																																													
Accomplishments/Effort/Subtotal Cost	0.434	0.464	0.803	0.128																																													
RDT&E Articles Quantity	0	0	0	0																																													
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RDT&E Articles Quantity	0	0	0	0																																													
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RDT&E Articles Quantity	0	0	0	0																																													

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2468/Undersea Warfare		

C. (U)PROGRAM CHANGE SUMMARY:

(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	1.419	1.669	4.178	1.976
FY 2006 President's Budget	1.521	1.653	3.448	1.473
Total Adjustments	0.102	-0.016	-0.730	-0.503

(U)Summary of Adjustments

Congressional undistributed reductions	-0.016	-0.016		
SBIR/STTR Transfer	-0.013			
Other Adjustments	0.131	0.000	-0.730	-0.503
Subtotal	0.102	-0.016	-0.730	-0.503

(U)Schedule:

Not Applicable

(U)Technical:

Not Applicable

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2468/Undersea Warfare																																					
<p>D. (U) OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. & Name</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2004</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2005</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2006</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2007</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2008</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2009</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2010</th> <th style="text-align: right; border-bottom: 1px solid black;">FY 2011</th> <th style="text-align: right; border-bottom: 1px solid black;">To Complete</th> <th style="text-align: right; border-bottom: 1px solid black;">Total Cost</th> </tr> </thead> <tbody> <tr> <td>PE 0604300N/ DD(X) Total Ship Sys Engineerir</td> <td style="text-align: right;">1,015.025</td> <td style="text-align: right;">1,163.933</td> <td style="text-align: right;">1,114.791</td> <td style="text-align: right;">904.432</td> <td style="text-align: right;">724.027</td> <td style="text-align: right;">647.319</td> <td style="text-align: right;">675.908</td> <td style="text-align: right;">726.420</td> <td style="text-align: right;">CONT.</td> <td style="text-align: right;">CONT.</td> </tr> <tr> <td>PE 2211900 / SCN</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">304.281</td> <td style="text-align: right;">715.992</td> <td style="text-align: right;">2,567.960</td> <td style="text-align: right;">2,814.869</td> <td style="text-align: right;">2,542.584</td> <td style="text-align: right;">2,629.878</td> <td style="text-align: right;">2,186.346</td> <td style="text-align: right;">CONT.</td> <td style="text-align: right;">CONT.</td> </tr> </tbody> </table> <p>E. (U) ACQUISITION STRATEGY:</p> <p>(U) In Contracting Phase I and II, DD(X) used Section 845/804 agreement authority for the efforts conducted by the DD(X) Industry Teams. BAAs were competitively awarded to further refine advanced information processing for automated detect classify and localize, data fusion, automated environmental adaptation, mine avoidance, torpedo defense, and displays for reduced manning to provide further risk mitigation for DD(X) USW activities. In Contract Phase III responsibility for IUSW-21 ADM/EDM development for the FY04 and FY05 sea tests will be with the DD(X) Design Agent.</p> <p>F. (U) MAJOR PERFORMERS:</p> <p>(U) DD(X) Design Agent-Ingalls Shipbuilding Inc (ISI) (U) Field Activities - Naval Undersea Warfare Center, Newport, Ri .</p>											Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost	PE 0604300N/ DD(X) Total Ship Sys Engineerir	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.	PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost																																	
PE 0604300N/ DD(X) Total Ship Sys Engineerir	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.																																	
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.																																	

R-1 SHOPPING LIST - Item No. 39

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDTE&E, N / BA-4			0603513N/Shipboard System Component Development			2468/Undersea Warfare								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	11.104	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.104	
	CPAF	DD(X) Design Agent	8.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.000	
	BAA/CPFF	Competition	14.776	0.374	Various	0.000	N/A	0.343	Various	0.178	Various	CONT	CONT	
Ancillary Hardware Development														
Systems Engineering	C/CPFF	LMC, Syracuse, NY	0.813	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	Other Gov't Activities	0.400	0.060	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	C/CPFF	RSC, Newport, RI	0.827	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Licenses	BAA/CPFF	Competition	0.000	0.000	N/A	0.000	N/A	0.735	Various	0.242	Various	CONT	CONT	
Tooling														
GFE														
Award Fees														
Subtotal Product Development			35.920	0.434		0.000		1.078		0.420		CONT	CONT	
Remarks:														
Development Support													0.000	
Software Development	C/CPFF	LMC, Syracuse, NY	11.589	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	C/CPFF	RSC, Newport, RI	10.316	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	Other Gov't Activities	0.750	0.000	N/A	0.464	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD(X) Design Agent	6.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Training Development	BAA/CPFF	Competition	0.000	0.000	N/A	0.000	N/A	1.371	Various	0.440	Various	CONT	CONT	
Integrated Logistics Support														
Configuration Management														
GFE														
Award Fees														
Subtotal Support			28.655	0.000		0.464		1.371		0.440		CONT	CONT	
Remarks:														

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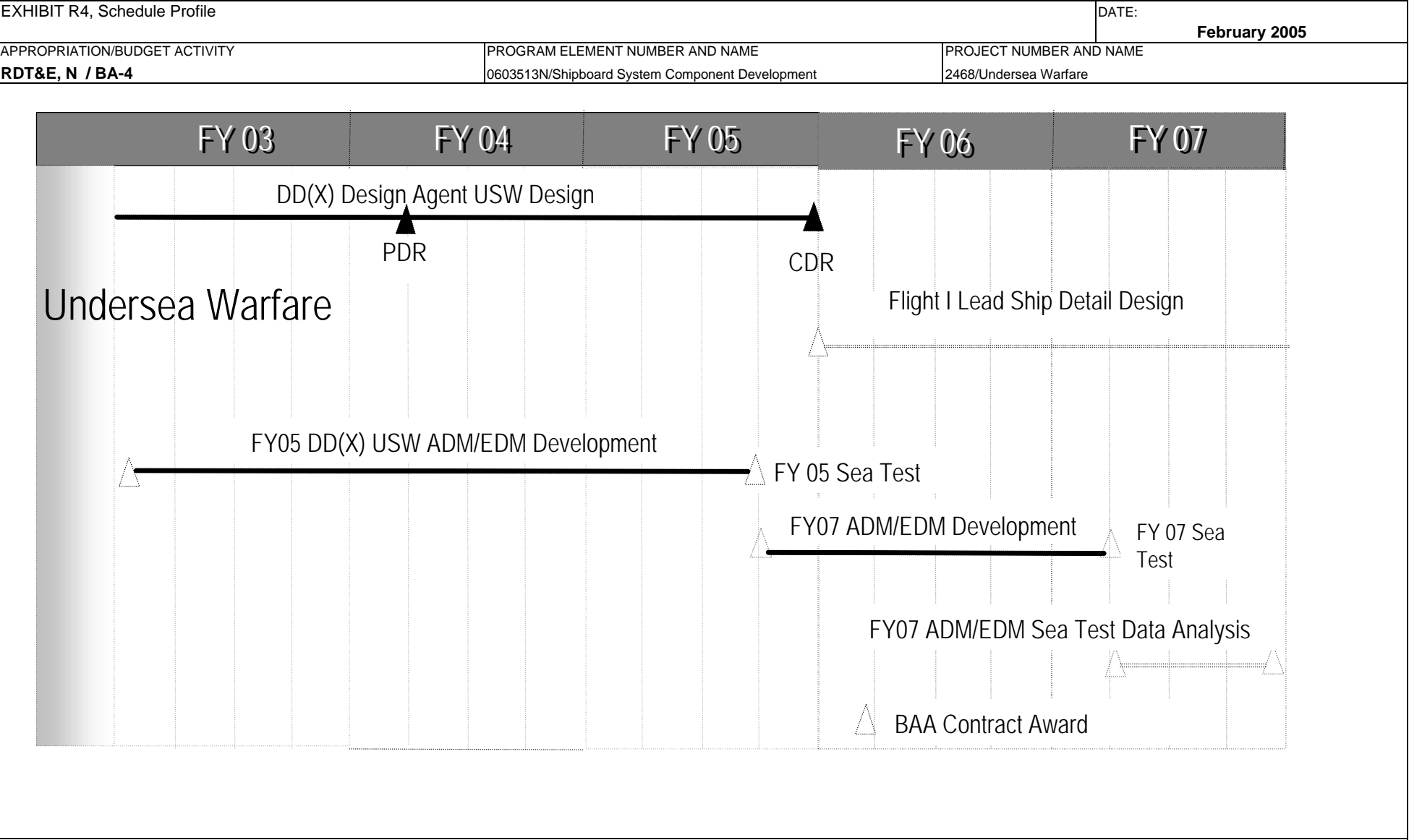
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603513N/Shipboard System Component Development			2468/Undersea Warfare								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NUWC/N Newport, RI	7.837	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	SS/CPFF	APL/JHU Laurel, MD	1.430	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD(X) Design Agent	1.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	Other Gov't Activities	0.000	0.370	Various	0.366	Various	0.655	Various	0.295	Various	CONT	CONT	
Operational Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			10.267	0.370		0.366		0.655		0.295		CONT	CONT	
Remarks:														
Contractor Engineering Support	various	Other Contractors	2.324	0.170	1QFY04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.543	
Government Engineering Support	WX	Other Gov't Activities	8.008	0.547	1QFY04	0.823	1QFY05	0.344	1QFY06	0.318	1QFY07	CONT	CONT	
	SS/CPFF	Various	2.355	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Program Management Support	PD/WX	Other Gov't Activities	0.290	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			12.977	0.717		0.823		0.344		0.318		CONT	CONT	
Remarks:														
Total Cost			87.819	1.521		1.653		3.448		1.473		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 39

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R-1 SHOPPING LIST - Item No. 39

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 19 of 51)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	3.420	3.430	2.512	1.997	2.038	2.072	2.116	2.156
RDT&E Articles Qty	0	0	0	0	0	0	0	0
<p>A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The following provides a mission description for each major development area (i.e., Fleet-Focused Initiative (FFI) and Open Systems Architecture (OSA):</p> <p>(U) Fleet-Focused Initiative: For existing and future ships, this funding: 1) improves reliability/maintainability of fluid, electrical, and mechanical systems and 2) supports reduced manning through automation of operational, maintenance, and day-to-day functions traditionally performed by the crew, and supports development of auxiliary systems to reduce ship magnetic signature and vulnerability to mines.</p> <p>(U) Architectures, Interfaces & Modular Systems (AIMS): This funding supports PEO Ships implementation of modular standard open systems architecture (OSA) at the total system/ship level. These modular interfaces facilitate mission and market adaptability, technology refresh and insertion, and competition. This funding supports the market surveillance and technology and other projections, cost and logistics analyses, process development, industry partnering, demonstrations and assessments necessary to translate into total ship acquisition.</p>								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)																																															
B. Accomplishments/Planned Program																																																	
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.960</td> <td style="text-align: center;">0.963</td> <td style="text-align: center;">0.620</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>(U) Common Family of Ships (FOS) Business/Technical Architecture and Technology Management: FY04: Drafted architecture for common FOS AIMS. FY05-06: Business Case/Architecture for common modular systems and standard interfaces.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">2.280</td> <td style="text-align: center;">2.467</td> <td style="text-align: center;">1.892</td> <td style="text-align: center;">1.997</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>(U) Implementation: Transition with industry common Architectures, Interfaces, and Modular Systems (AIMS) for shipboard zones.</p> <p>A. FY04-1QFY05: Command and Control Zone Architecture development, FY05: Command and Control Zone Interface development.</p> <p style="padding-left: 20px;">The following effort is a subset of the C&C Zone:</p> <ol style="list-style-type: none"> 1. Open C4I Zone: FY04 HVAC Implementation (completed 4Q FY04) 2. Supply, Maintenance and Monitoring Open Architecture (SMMOA) Interfaces: FY04: Interface concept developed, FY05: Interface development. <p>B. Open Offboard Vehicle Zone, FY04: Architecture developed, FY05-07: Interfaces.</p> <p>C. Open Weapons/Power Projection Zone: FY04-05: Architecture development, FY06-07: Interface development</p> <p>D. Open Sensors Zone: FY06-FY07 Concept development.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.180</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>(U) Fleet-Focused Initiatives - TOC Initiatives - Continued development of improved fuel system training that reduced sailor workload for the existing fleet. Completed efforts to improve fuel system training that reduce's workload for the existing fleet and issued final report.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.960	0.963	0.620	0.000	RDT&E Articles Quantity	0	0	0	0		FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.280	2.467	1.892	1.997	RDT&E Articles Quantity	0	0	0	0		FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.180	0.000	0.000	0.000	RDT&E Articles Quantity	0	0	0	0
	FY 04	FY 05	FY 06	FY 07																																													
Accomplishments/Effort/Subtotal Cost	0.960	0.963	0.620	0.000																																													
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	FY 04	FY 05	FY 06	FY 07																																													
Accomplishments/Effort/Subtotal Cost	0.180	0.000	0.000	0.000																																													
RDT&E Articles Quantity	0	0	0	0																																													

R-1 SHOPPING LIST - Item No.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2469/Open Systems Architecture (OSA)		
C. (U) PROGRAM CHANGE SUMMARY:				
(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	3.723	3.463	2.520	2.013
FY 2006 President's Budget	3.420	3.430	2.512	1.997
Total Adjustments	-0.303	-0.033	-0.008	-0.016
(U)Summary of Adjustments				
Congressional undistributed reductions	-0.042	-0.032		
SBIR/STTR Transfer	-0.029			
Other Adjustments	-0.232	-0.001	-0.008	-0.016
Subtotal	-0.303	-0.033	-0.008	-0.016
(U)Schedule:				
Not Applicable				
(U)Technical:				
Not Applicable				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)				

D. (U) OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.

E. ACQUISITION STRATEGY:

F. (U) MAJOR PERFORMERS:

(U) Government Field Activities- Naval Surface Warfare Center, Carderock, Md. and Naval Surface Warfare Center, Dahlgren, Va.

R-1 SHOPPING LIST - Item No. 39

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603513N/Shipboard System Component Development			2469/Open Systems Architecture (OSA)									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	845/804	DD(X) Industry Teams	35.327	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	35.327		
	WX	NSWC CD Bethesda, MD	10.023	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	10.023		
	Various	Other Gov't Activities	4.987	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	4.987		
	Various	Other Contractors	2.735	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.735		
Ancillary Hardware Development													0.000		
Systems Engineering													0.000		
Licenses													0.000		
Tooling													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Product Development			53.072	0.000		0.000				0.000		0.000	53.072		
Remarks:															
Development Support													0.000		
Software Development													0.000		
Training Development													0.000		
Integrated Logistics Support													0.000		
Configuration Management													0.000		
Technical Data													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Support			0.000	0.000		0.000				0.000		0.000	0.000		
Remarks:															

R-1 SHOPPING LIST - Item No. 39

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 24 of 51)

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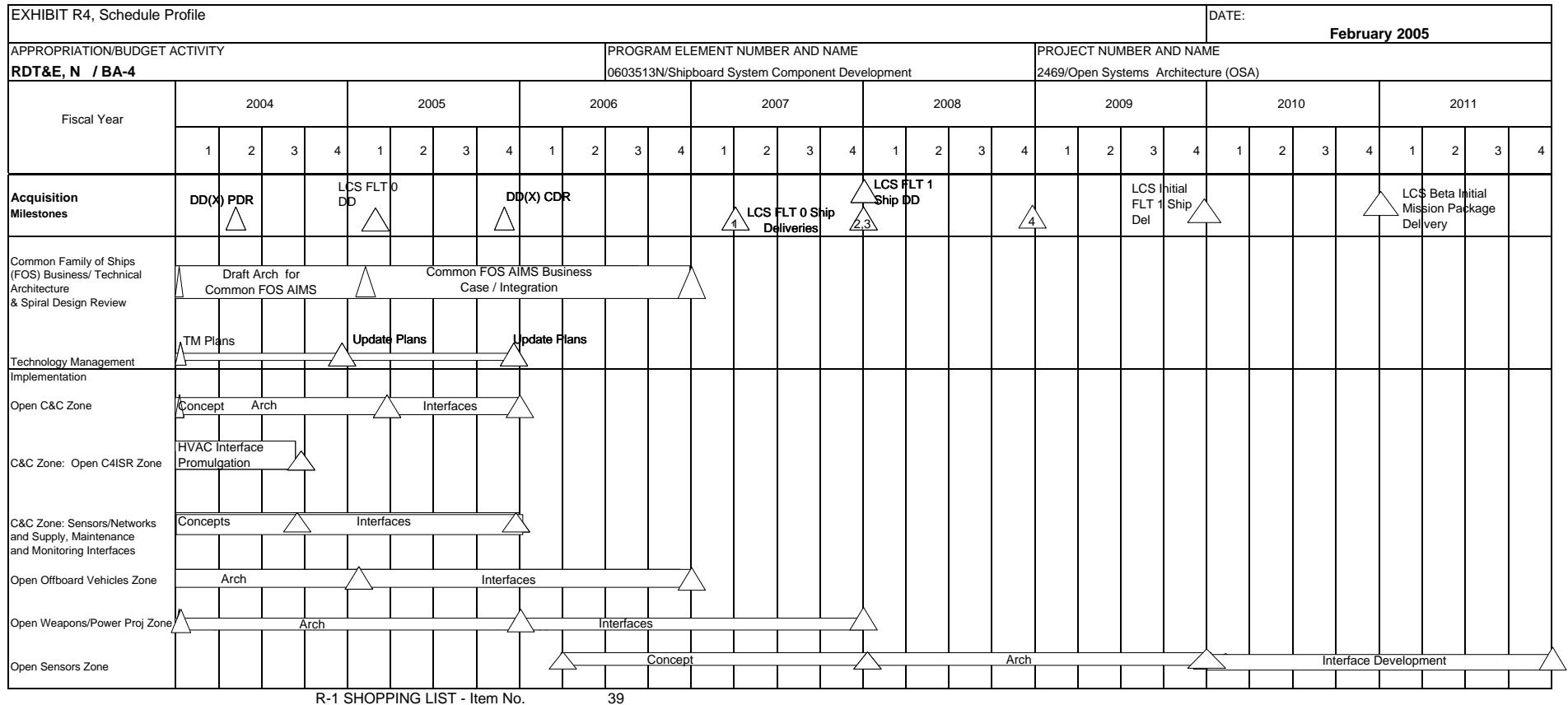
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2469/Open Systems Architecture (OSA)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000				0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support	Various	Other Contractors	8.729	0.150	N/A	0.340	N/A	0.300	10/05	0.200	10/06	CONT	CONT	
Government Engineering Support	WX	NSWC CD Philadelphia, PA	3.763	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	3.763	
	WX	NSWC Carderock, Md.	0.000	2.287	10/03	2.380	10/04	1.212	10/05	0.000	10/06	CONT	CONT	
	Various	Other Gov't Activities	30.360	0.983	Various	0.710	Various	1.000	Various	1.797	Various	CONT	CONT	
Program Management Support													0.000	
Travel													0.000	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			42.852	3.420		3.430		2.512		1.997		CONT	CONT	
Remarks:														
Total Cost			95.924	3.420		3.430		2.512		1.997		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 39

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CLASSIFICATION:



* Not required for Budget Activities 1, 2, 3, and 6

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE:			
					February 2005			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT			PROJECT NUMBER AND NAME			
RDTE&E, N / BA-4		PE 0603513N Shipboard System Component Development			2469/ Open Systems Architecture (OSA)			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Business/Technical Architecture								
FOS SDR / Modularity Assessment complete								
Draft Architecture for Common FOS AIMS Complete		1Q						
Common FOS AIMS Modularity Integration Complete			4Q					
Technology Management:								
Initial Database Complete								
TM Plans Issues								
Update TM plans	4Q	4Q						
Implementation								
Open Command and Control Zone								
Open C&C Zone Concept Complete								
Open C&C Zone Architecture Complete		1Q						
Open C&C Zone Interfaces Defined			1Q					
Open C4I Zone Foundation Promulgation								
Open C4I Zone HVAC Interface Defined								
Open C4I Zone HVAC Implementation Complete	3Q							
Sensor/Networks and SMMOA Risk Reduction								
Sensor/Networks and SMMOA Interface Concepts Complete	4Q							
Sensor/Networks and SMMOA Interfaces Defined		3Q						
Open Offboard Vehicles Zone:								
Open Offboard Vehicles Zone Concept Complete								
Open Offboard Vehicles Zone Architecture Complete		1Q						
Open Offboard Vehicles Zone Interfaces Defined				1Q				
Open Weapons/Power Projection Zone:								
Open Weapons Zone Concept Complete								
Open Weapons Zone Arch Complete			1Q					
Open Weapons Zone Interfaces Defined					1Q			
Open Sensors Zone:								
Open Sensors Zone Concept Complete					1Q			
Open Sensors Zone Architecture Complete						4Q		
Open Sensors Zone Interfaces Defined								4Q

R-1 SHOPPING LIST - Item No. 39

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Exhibit R-2, RDTEEN Budget Item Justification
(Exhibit R-2, page 27 of 51)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2470/Integrated Topside Design (ITD)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	3.475	3.554	2.691	0.535	0.519	0.523	0.534	0.538
RDT&E Articles Qty	0	0	0	0	0	0	0	0
<p>A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops the necessary technologies to achieve a total integrated topside design focused on DD(X) and other future surface combatant ships as well as supporting upgrades to existing ships in the Fleet. Technology focus areas include the development, enhancement, validation and verification of modeling and simulation (M&S) tools to support topside signature control, electronic warfare effectiveness, and electromagnetic engineering. This project also develops technical data to support the use of large-scale marine composites on surface combatants to facilitate topside signature control. Topside signature control and electronic warfare effectiveness M&S tools supported by this project enable Navy transformation efforts related to sea strike by facilitating the cost effective design, design approval, and Live Fire Test and Evaluation of low signature surface ships. The validated, integrated, physics-based, electromagnetic radiation (VIPER) M&S tool suite currently being developed under this project will provide the Navy with a state-of-the-art electromatgnetic engineering (EME) capability that is applicable to both new construction and existing ships in the Fleet. By providing the design community with tools able to accurately predict the optimum arrangement of topside sensors to minimize electromagnetic interference (EMI), this project enables Navy transformation efforts by facilitating FORCEnet, the connection of sensors, networks, weapons, decision aids and warriors from seabed to space. Development of marine composite technical data supports Navy transformation efforts by enabling the cost effective design of stealthy surface ship topsides that have improved corrosion control which, in turn enables optimized manning. This program is directed toward improved affordability, performance, reduced life cycle cost, reliability and maintainability, signature reduction, standardization, and weight and manning reductions for the existing and future Fleet.</p>								

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 28 of 51)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2470/Integrated Topside Design (ITD)		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.465	1.512	1.120	0.230
RDT&E Articles Quantity	0	0	0	0
<p>FY04: Completed V1.0 RF Coupling D&A M&S Tool; Released V11.1 RTS M&S Tool; Released V3.1 ShipIR M&S Tool.</p> <p>FY 05: Complete validation of V1.0 RF Coupling D&A M&S Tool; Release V12.0 RTS M&S Tool; Release V3.2 ShipIR M&S Tool.</p> <p>FY 06: Complete V2.0 RF Coupling D&A M&S Tool; Release V12.1 RTS M&S Tool; Release V3.3 ShipIR M&S Tool.</p> <p>FY 07: Complete V3.0 RF Coupling D&A M&S Tool; Release V13. RTS M&S Tool; Release V3.4 ShipIR M&S Tool.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.471	1.465	1.131	0.223
RDT&E Articles Quantity	0	0	0	0
<p>FY04: Released validated Ver 1.0 Advanced Antenna Design and Analysis (D&A) M&S Tool ; Released validated Ver 1.0 Frequency Selective Surface D&A M&S Tool.</p> <p>FY05 Release Ver 2.0 Advanced Antenna Design and Analysis (D&A) M&S Tool ; Release V. 2.0 Frequency Selective Surface D&A M&S Tool.</p> <p>FY06: Release Ver 3.0 Advanced Antenna Design and Analysis (D&A) M&S Tool ; Release V. 3.0 Frequency Selective Surface D&A M&S Tool.</p> <p>FY07: Release Ver 4.0 Advanced Antenna Design and Analysis (D&A) M&S Tool.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.539	0.577	0.440	0.082
RDT&E Articles Quantity	0	0	0	0
<p>FY 04:Completed NAVSEA Tech Pub 278 for Non Destructive Inspection of Composite Ship Structure; Transitioned Non Destructive Inspection of Composite Ship Structure technical information to ABS Naval Vessel Rules; Completed Technical Report on Flaw Criticality and Inspection Criteria for Ship Composites, Completed Technical Report on Integral Joint Test and Analysis Results.</p> <p>FY05: Complete Joint Design Failure Mapping Report; Complete Structural Design and Analysis of Ship Composite Topside Structure Report; Transition Structural Design and Analysis of Ship Composite Topside Structure Info to ABS Naval Vessel Rules; Transition Flaw Criticality and Inspection Criteria for Ship Composites Info to ABS Naval Vessel Rules.</p> <p>FY06: Issue Revised Composites Joint Design Guide; Issue revised Fire safety rules and guidelines</p> <p>FY07: Update Info for ABS Naval Vessel Rules.</p>				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	2470/Integrated Topside Design (ITD)		
C.(U) PROGRAM CHANGE SUMMARY:				
(U)Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	3.665	3.589	2.773	0.816
FY 2006 President's Budget	3.475	3.554	2.691	0.535
Total Adjustments	-0.190	-0.035	-0.082	-0.281
(U)Summary of Adjustments				
Congressional undistributed reductions	-0.041	-0.034		
Miscellaneous Minor Adjustments	-0.149	-0.001	-0.082	-0.281
Subtotal	-0.190	-0.035	-0.082	-0.281
(U)Schedule:				
Not Applicable				
(U)Technical:				
Not Applicable				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME			
RDT&E, N / BA-4			0603513N/Shipboard System Component Development				2470/Integrated Topside Design (ITD)			
D. (U)OTHER PROGRAM FUNDING SUMMARY:										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.
E. ACQUISITION STRATEGY:										
F. (U) MAJOR PERFORMERS:										
(U)Government Field Activities-Naval Research Laboratory, Washington DC, and Space and Naval Warfare Systems Center, San Diego, Ca.										

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Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2470/Integrated Topside Design (ITD)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	845/804	DD(X) Industry Teams	24.556	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	24.556	
Ancillary Hardware Development													0.000	
Systems Engineering												0.000	0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			24.556	0.000		0.000		0.000		0.000		0.000	24.556	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603513N/Shipboard System Component Development			2470/Integrated Topside Design (ITD)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support	GSA/FFP	Anteon Arlington, Va.	3.460	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	3.460	
	Various	Other Contractors	0.000	0.095	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
Government Engineering Support	WX	NSWC CD Bethesda, MD	1.414	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	NRL, Washington DC	1.120	1.025	10/03	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	WX	SSCSD, San Diego, CA	1.566	1.140	10/03	1.025	10/04	0.000	N/A	0.000	N/A	CONT	CONT	
	Various	Other Gov't Activities	23.652	1.215	Various	2.529	Various	2.691	Various	0.535	Various	CONT	CONT	
Program Management Support													0.000	
Travel													0.000	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			31.212	3.475		3.554		2.691		0.535		CONT	CONT	
Remarks:														
Total Cost			55.768	3.475		3.554		2.691		0.535		CONT	CONT	
Remarks:														

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Exhibit R-4a, Schedule Detail					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2470/Integrated Topside Design			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Electromagnetic Engineering								
Advanced Antenna Design and Analysis (D&A) M&S Tool								
Version 2.0 Released		2Q						
Version 3.0 Released			2Q					
Version 4.0 Released				3Q				
Version 5.0 Released						3Q		
Version 6.0 Released								3Q
Frequency Selective Surface D&A M&S Tool								
Version 2.0 Released		3Q						
Version 3.0 Released			3Q					
Antenna Electronics D&A M&S Tool								
Version 1.0 Released	1Q							
Topside RF Coupling D&A M&S Tool								
Version 1.0 Released		2Q						
Version 2.0 Released			2Q					
Version 3.0 Released				2Q				
Version 4.0 Released						3Q		
Version 5.0 Released								3Q
Electronic Warfare Effectiveness and Topside Signatures								
Radar Target Signature M&S Tool								
Version 11.1 Released	4Q							
Version 12.0 Released		4Q						
Version 12.1 Released			4Q					
Version 13.0 Released				4Q				
Version 14.0 Released						4Q		
ShipIR M&S Tool								
Version 3.1 Released	1Q							
Version 3.2 Released		1Q						
Version 3.3 Released			1Q					
Version 3.4 Released				4Q				
Composite Materials								
Fire Safety Goals	4Q		4Q					
Flaw Criticality and Non Destructive Testing Goals	4Q	4Q						
Joint Design and Validation Guide	4Q	4Q	4Q					
Structural Design Goals	4Q	4Q		4Q				
Fire Safety Goals	4Q		4Q					
Flaw Criticality and Non Destructive Testing Goals	4Q	4Q		4Q				
Joint Design and Validation Guide	4Q	4Q	4Q	4Q				
Structural Design Goals	4Q	4Q		4Q				

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EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 2471/Integrated Power Systems			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	4.968	4.091	9.234	8.496	7.597	7.651	7.655	7.598
RDT&E Articles Qty	0	0	0	0	0	0	0	0
<p>A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports the Integrated Power Systems (IPS) program. IPS provides total ship electric power, including electric propulsion, power conversion and distribution, combat system and mission load interfaces to the electric power system. IPS supports multiple ship class applications for future surface ships, with DD(X), DD(X) future flight upgrades, and CG(X) being the primary ship application target. On 6 January 2000, SECNAV announced Navy intent that DD(X) be an electric drive ship with integrated power architecture. IPS reduces acquisition and operating costs of naval ships and increases military effectiveness. IPS leverages investments in technologies that will be useable by both military and commercial sectors.</p> <p>- (U) IPS has the potential to revolutionize the design, construction, and operation of U.S. naval ships by using electricity as the primary energy transfer medium aboard ship. The flexibility of electric power transmission allows power generating modules with various power ratings to be connected to propulsion loads and ship service in any arrangement that supports the ship's mission at lowest overall cost. Systems engineering in IPS is focused on increasing the commonality of components used across ship types and in developing modules which will be integral to standardization, zonal system architectures, and generic shipbuilding strategies. The purpose of increased commonality is to reduce the total cost of ship ownership by using common modules composed of standard components and/or standard interfaces.</p> <p>- (U) IPS addresses ship platform program goals through: reduced ship acquisition cost through integration of propulsion and ship's service prime movers; lower ship operational costs resulting from more flexible operating characteristics and more efficient components; reduced ship construction costs by allowing more extensive modular construction of power generation, distribution, and loads; improved ship survivability and reduced vulnerability through increased arrangement flexibility and improved electrical system survivability; reduced manning through improved power management systems and reduced on-board maintenance requirements; improved ship signature characteristics; improved design adaptability to meet future requirements of multiple ship types or missions; integrating power management and protection by fully utilizing the power electronics in the system to perform fault protection as well as power conversion and load management functions; simplified technology insertion which allows new technologies to be installed within IPS much less expensively than presently possible; and, reduced machinery system acquisition costs through utilization of commercially shared technologies and components.</p>								

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Exhibit R-2, RDTE Budget Item Justification
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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 2471/Integrated Power Systems																																															
B. Accomplishments/Planned Program																																																	
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">4.191</td> <td style="text-align: center;">0.939</td> <td style="text-align: center;">4.783</td> <td style="text-align: center;">5.896</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>System Development: Continue to improve baseline power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, ship integration, architecture design, ship electric architectures and high power weapons systems requirements, and related efforts. Evaluate emerging technologies for ship applications to determine future feasibility and development requirements. Emerging technologies include fuel cells, high-energy weapons, high power radars, high-speed generators and advanced power electronics.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.477</td> <td style="text-align: center;">3.152</td> <td style="text-align: center;">3.851</td> <td style="text-align: center;">2.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>System Test: Conduct Integrated Fight through Power (IFTP) testing at NSWCCD, Philadelphia PA and at-sea on the RV Triton. Completed integration of IFTP and DDX IPS test sites. Mitigate potential risks associated with a fielded IPS system to reduce ship's signature, improve survivability and efficiency by fabricating components, inserting into the IPS test site or an appropriate test platform. Conduct demonstrations to maintain and develop the critical engineering capability and capacity to insert future high power weapon systems (radars, lasers and electromagnetic launch weapons) into DD(X) and future ship classes including CG(X). Conduct demonstrations to show improved performance and potential to reduce combat system costs.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.300</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.600</td> <td style="text-align: center;">0.600</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>Platform Specific: Develop IPS configurations in support of all future surface ship programs. Develop/modify IPS ship configuration documentation including concepts of operations, System Level Description/Requirements, and module performance specifications as necessary to support power system requirements for TAOE(X), LHA(R), MPF(F), and COBRA JUDY. Improve ship power system smart product model to support cost/performance tradeoffs of alternative IPS ship configurations and evaluation of emerging electric power system and component technologies.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	4.191	0.939	4.783	5.896	RDT&E Articles Quantity	0	0	0	0		FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.477	3.152	3.851	2.000	RDT&E Articles Quantity	0	0	0	0		FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.300	0.000	0.600	0.600	RDT&E Articles Quantity	0	0	0	0
	FY 04	FY 05	FY 06	FY 07																																													
Accomplishments/Effort/Subtotal Cost	4.191	0.939	4.783	5.896																																													
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RDT&E Articles Quantity	0	0	0	0																																													
	FY 04	FY 05	FY 06	FY 07																																													
Accomplishments/Effort/Subtotal Cost	0.300	0.000	0.600	0.600																																													
RDT&E Articles Quantity	0	0	0	0																																													

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 38 of 51)

R-1 SHOPPING LIST - Item No. 39

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification

DATE: February 2005

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME							
RDT&E, N / BA-4	0603513N/Shipboard System Component Development		2471/Integrated Power Systems							

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin	1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN	0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.

E. (U)ACQUISITION STRATEGY:

(U) IPS is a candidate system for DD(X) and all other future surface ships.

F. (U)MAJOR PERFORMERS:

(U) IPS DD(X) Design Agent, Ingalls Shipbuilding linc. General Atomics and DRS Power and Controls Technologies Inc., IPS IFTP contractors.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603513N/Shipboard System Component Development			2471/Integrated Power Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	Lockheed M Syracuse, NY	23.572	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	Sec845/804	DD (X) Industry Teams	66.661	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CPAF	DD (X) Design Agent	154.500	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	US/UK MOU	DERA, UK	1.350	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	Sec845/804	IFTP Teams	49.713	2.769	10/03	1.818	10/04	1.854	10/05	0.232	10/06	CONT	CONT	
	C/CPAF	Anteon, Corp. Fairfax, VA	0.000	1.459	02/04	0.946	N/A	1.935	10/05	1.324	10/06	CONT	CONT	
	WX	NSWCCD Philadelphia, PA	24.155	0.232	10/03	0.278	10/04	0.531	10/05	0.400	10/06	CONT	CONT	
	WX	NSWCCD Dahlgren, Va.	2.806	0.000	10/03	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	Various	Other Contractors	9.950	0.103	12/03	0.175	12/04	0.100	10/05	0.100	10/06	CONT	CONT	
	Various	Other Govt Activities	1.895	0.000	N/A	0.000	N/A	0.100	10/05	0.100	10/06	CONT	CONT	
	C/CPAF	RS TD, TBD	0.000	0.000	N/A	0.000	N/A	3.753	1Q/05	4.834	10/06	CONT	CONT	
Ancillary Hardware Development													0.000	
Systems Engineering													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees	C/CPAF	Anteon, Corp. Fairfax, VA		0.055	3Q/04	0.054	07/05	0.111	3Q/06	0.076	3Q/07	CONT	CONT	
Subtotal Product Development			334.602	4.618		3.271		8.384		7.066		CONT	CONT	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000				0.000		0.000	0.000	
Remarks:														

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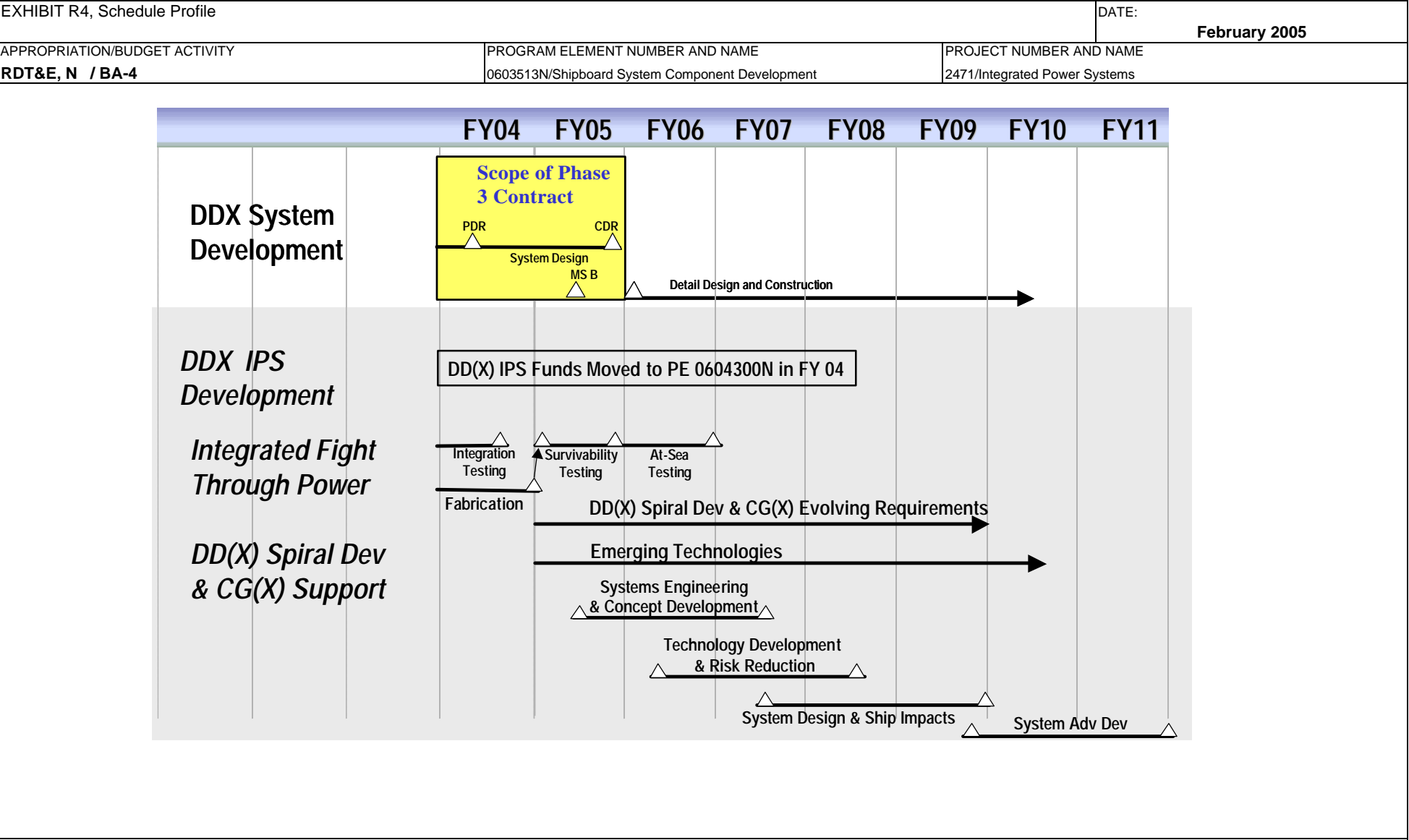
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 2471/Integrated Power Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NSWC CD Philadelphia, PA	17.626	0.350	10/03	0.800	10/04	0.820	10/05	1.400	10/06	CONT	CONT	
Operational Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			17.626	0.350		0.800		0.820		1.400		CONT	CONT	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support													0.000	
Travel	Various	Various	0.574	0.000	N/A	0.020	10/04	0.030	10/05	0.030	10/06	CONT	CONT	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.574	0.000		0.020		0.030		0.030		CONT	CONT	
Remarks:														
Total Cost			352.802	4.968		4.091		9.234		8.496		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 39

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R-1 SHOPPING LIST - Item No. 39

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 43 of 51)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development				PROJECT NUMBER AND NAME 4019/Radar Upgrades			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	0.000	0.000	1.792	6.997	7.143	7.294	7.445
RDT&E Articles Qty	0	0	0	0	0	0	0	0
A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Radar Upgrades will fund future upgrades/technology insertion efforts for the Multi-Function Radar (MFR)/Volume Search Radar (VSR)/Dual Band Radar (DBR) suite. Upgrades and technology inserts are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, T/R module, Receiver/Exciter, Signal Data Processor and power/cooling systems.								

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 44 of 51)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603513N/Shipboard System Component Development	PROJECT NUMBER AND NAME 4019/Radar Upgrades		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.809
RDT&E Articles Quantity	0	0	0	0
<div style="border: 1px solid black; padding: 5px; min-height: 30px;"> Radar Upgrades and Technology Insertion for the MFR/VSР/DBR hardware and software. Commence Radar Upgrades studies and analysis in FY 07. </div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.851
RDT&E Articles Quantity	0	0	0	0
<div style="border: 1px solid black; padding: 5px; min-height: 60px;"> Government Engineering Services and Program Management support for radar upgrades and technology insertion of the MFR/VSР/DBR radars. Perform oversight and assessment of efforts associated with this phase of the program. </div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.132
RDT&E Articles Quantity	0	0	0	0
<div style="border: 1px solid black; padding: 5px; min-height: 40px;"> Provide Program Management in support of radar upgrades and technology insertion. </div>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603513N/Shipboard System Component Development	4019/Radar Upgrades		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget	0.000	0.000	10.023	6.806
FY 2006 President's Budget	0.000	0.000	0.000	1.792
Total Adjustments	0.000	0.000	-10.023	-5.014
Summary of Adjustments				
Realign Volume Search Radar to 0604300N/2735			-10.000	-5.000
Miscellaneous Minor Adjustments			-0.023	-0.014
Subtotal	0.000	0.000	-10.023	-5.014
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:		February 2005	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME				
RDT&E, N / BA-4			0603513N/Shipboard System Component Development				4019/Radar Upgrades				
D. OTHER PROGRAM FUNDING SUMMARY:											
Line Item No. & Name		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604300N/ DD(X) Total Ship Sys Engineerin		1,015.025	1,163.933	1,114.791	904.432	724.027	647.319	675.908	726.420	CONT.	CONT.
PE 2211900 / SCN		0.000	304.281	715.992	2,567.960	2,814.869	2,542.584	2,629.878	2,186.346	CONT.	CONT.
E. (U)ACQUISITION STRATEGY:											
(U)											
F. (U)MAJOR PERFORMERS:											
(U) Northrop Grumman Ship Systems, Raytheon and Lockheed Martin.											

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RD&E, N / BA-4			PROGRAM ELEMENT 0603513N/Shipboard System Component Development			PROJECT NUMBER AND NAME 4019/Radar Upgrades								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development														
Ancillary Hardware Development													0.000	
Systems Engineering	C/CPAF	DD(X) Design Agent	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.809	1QFY07	CONT	CONT	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			0.000	0.000		0.000				0.809		CONT	CONT	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000				0.000		0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 39

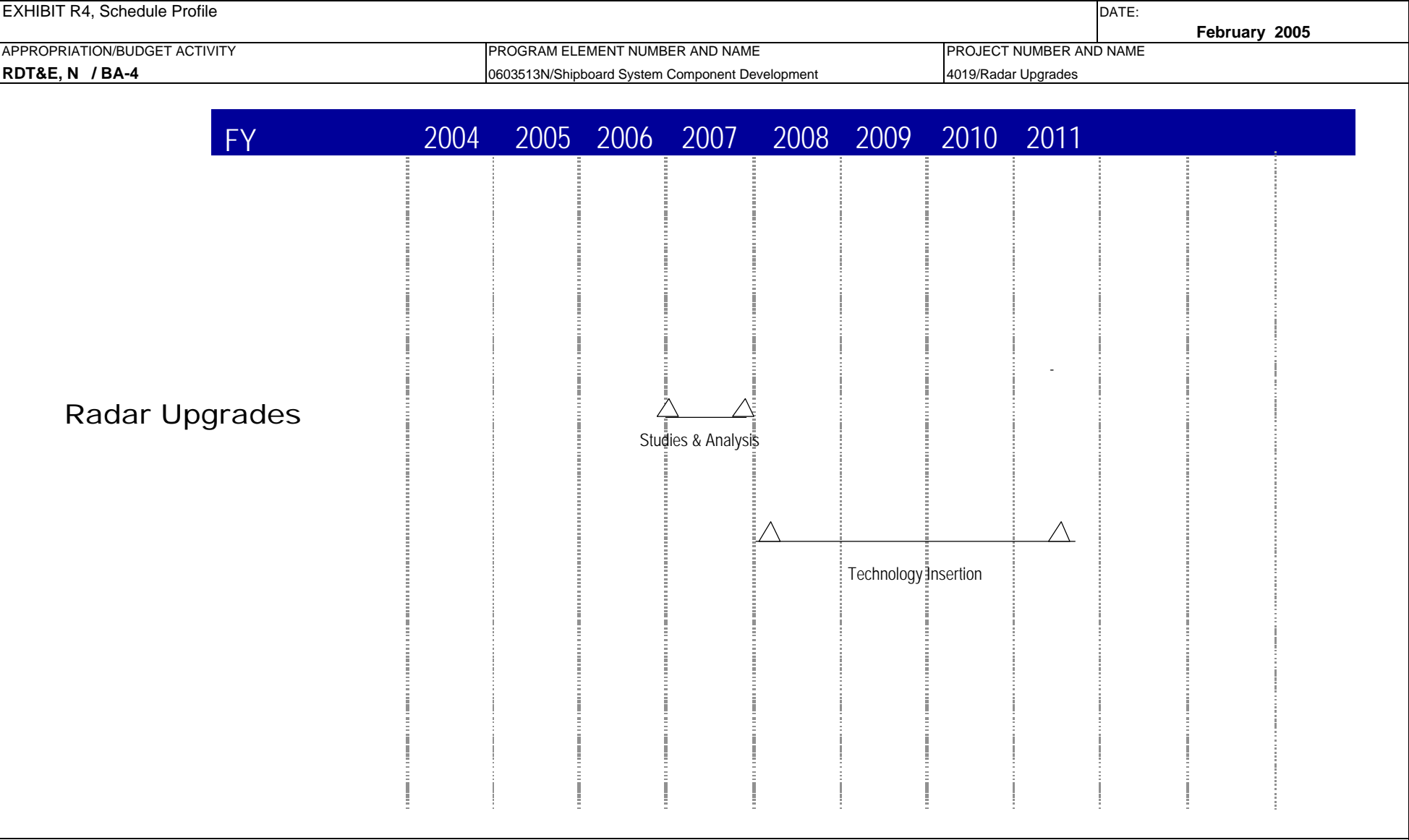
UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0603513N/Shipboard System Component Development					PROJECT NUMBER AND NAME 4019/Radar Upgrades						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Operational Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000				0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support														
Government Engineering Support	WX	Other Gov't Activities	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.851	1QFY07	CONT	CONT	
Program Management Support	C/CPFF	Various	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.132	1QFY07	CONT	CONT	
Travel														
Labor (Research Personnel)														
SBIR Assessment													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.983		CONT	CONT	
Remarks:														
Total Cost			0.000	0.000		0.000		0.000		1.792		CONT	CONT	
Remarks:														

CLASSIFICATION:



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CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 39

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 51 of 51)

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603542N/Radiological Controls			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost								
Project Unit 1830/RADIAC Development	1.094	0.938	1.845	1.933	1.744	1.282	1.100	1.137
RDT&E Articles Qty	58	5	25	20	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Mission: The Radiation Detection, Indication and Computation (RADIAC) Program is responsible for providing radiation monitoring instruments that detect and measure radiation in accordance with the provisions of Title 10 of the Code of Federal Regulations (10CFR). These instruments are used on all vessels afloat and at every shore installation in order to ensure the safety of personnel and the environment. RADIACs are also required after an act of terrorism or war that involves nuclear material in order to enable continuing warfighting ability.

Justification: Many RADIAC instruments and dosimetry systems are decades old and approaching the end of their useful lives. In some cases the equipment and replacement parts are no longer manufactured, making the equipment logistically unsupportable. In other cases increasing failure rates due to age make replacements an economic efficiency improvement. In many cases a technology refresh will make both economic sense and provide increased operational capabilities.

Multi-Function RADIAC (MFR): This instrument replaces 16 families of obsolescent equipment to provide increased capability at what will be significantly lower operating costs once the MFR Control Unit and its entire complement of probes have been developed. The Control Unit and one probe are currently being fielded, but in order to achieve the full design functionality of the MFR, several probes that will detect various other types of radiation (neutron, radiography, trans-uranic X-ray, pulsed x-ray, universal) must yet be developed. Training simulators.

Naval Dosimetry System (NDS): The NDS, or personnel dosimetry system, is being developed to support routine operations and maintenance of Navy systems involving occupational exposure to radiation on nuclear ships, nuclear maintenance facilities, hospitals, weapons, and in other radiological environments. A new system is needed to replace the current CP-1112 and DT-526 system, which is approaching the end of its useful life due to increasing failure rates and the non-availability of replacement parts.

A Casualty Dosimetry System (CDS) is needed to support continuing Fleet operations in the event of an act of terrorism or war involving nuclear materials. The current CDS that consists of the CP-95 Reader and DT-60 Dosimeter is at the end of its useful life. The current readers are no longer logistically supported and only cannibalization is available to restore non-operational units.

A replacement for the AN/PDR-65 Ship Board Monitoring System must be developed.

The IM-239/WDQ Air Particle Detector (APD) and the HD-732, HD-1150 and HD-1151 Air Particle Samplers (APS) are obsolescent and will be replaced with a single unit.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603542N/Radiological Controls	PROJECT NUMBER AND NAME 1830/RADIAC Development																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.815</td><td style="text-align: center;">0.725</td><td style="text-align: center;">0.753</td><td style="text-align: center;">0.824</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">5</td><td style="text-align: center;">5</td><td style="text-align: center;">20</td><td style="text-align: center;">10</td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.815	0.725	0.753	0.824	RDT&E Articles Quantity	5	5	20	10
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.815	0.725	0.753	0.824															
RDT&E Articles Quantity	5	5	20	10															
<div style="border: 1px solid black; padding: 5px;">Continue Multi-Function RADIAC (MFR) development and testing of prototype units for Frisker, Neutron, Radiography, Transuranic X-ray and Universal Probes, Training Simulators and for software development to enable multiple automated calibration of MFR components. Articles are prototypes for evaluation.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.179</td><td style="text-align: center;">0.113</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">3</td><td style="text-align: center;">0</td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.179	0.113			RDT&E Articles Quantity	3	0		
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.179	0.113																	
RDT&E Articles Quantity	3	0																	
<div style="border: 1px solid black; padding: 5px;">Continue development of a personnel dosimetry system for the Navy Nuclear Propulsion Program. Articles are prototypes for evaluation.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.100</td><td style="text-align: center;">0.100</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">50</td><td style="text-align: center;">0</td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.100	0.100			RDT&E Articles Quantity	50	0		
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.100	0.100																	
RDT&E Articles Quantity	50	0																	
<div style="border: 1px solid black; padding: 5px;">Continue development of a Casualty Dosimetry System. Articles are prototypes for evaluation.</div>																			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603542N/Radiological Controls	PROJECT NUMBER AND NAME 1830/RADIAC Development																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td style="text-align: center;">0.194</td><td style="text-align: center;">0.426</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td style="text-align: center;">5</td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost			0.194	0.426	RDT&E Articles Quantity				5
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost			0.194	0.426															
RDT&E Articles Quantity				5															
Develop replacement for mast-mounted AN/PDR-65. Articles are prototypes for evaluation.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td style="text-align: center;">0.898</td><td style="text-align: center;">0.683</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td style="text-align: center;">5</td><td style="text-align: center;">5</td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost			0.898	0.683	RDT&E Articles Quantity			5	5
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost			0.898	0.683															
RDT&E Articles Quantity			5	5															
APD and APS development. Articles are prototypes for evaluation.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603542N/Radiological Controls	1830/RADIAC Development		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY05 President's Budget	1.097	0.946	0.956	0.966
FY06 President's Budget	1.094	0.938	1.845	1.933
Total Adjustments	-0.003	-0.008	0.889	0.967
Summary of Adjustments				
Directed adjustments	-0.003	-0.008	-0.002	0.017
RADIAC/Rad Con realignment			0.891	0.950
Subtotal	-0.003	-0.008	0.889	0.967
Schedule:				
Additional development is required on the Casualty Dosimetry System and the Multi-Function RADIACb(MFR) Frisker Probe based on the initial prototype evaluation.				
Technical:				
The scope of development of the Naval Dosimetry System has been expanded to include evaluation of a secondary personnel dosimetry system for shipboard use.				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603542N/Radiological Controls			PROJECT NUMBER AND NAME 1830/RADIAC Development					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
OPN BLI 292000 RADIAC	8.447	12.411	9.783	10.401	10.747	10.403	9.543	9.775	CONT.	CONT.
 E. ACQUISITION STRATEGY:										
Development efforts are being focused on evaluation, modification (as required to meet operational requirements) and adaptation of commercial-off-the-shelf (COTS) technology in order to minimize total ownership costs. To the maximum extent possible new contracts are targeted for fixed price efforts to control development cost.										
 F. MAJOR PERFORMERS:										
SPAWARSYSCEN Charleston. Technical Direction Agent and In-Service Engineering Assistance. NSWC Carderock. Science & Technology Agent. Science Applications International Corporation (SAIC). Multi-Function RADIAC Probe development, multiple awards. JP Laboratories, Inc. Development of Casualty Dosimetry System.										

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4				PROGRAM ELEMENT 0603542N/Radiological Controls				PROJECT NUMBER AND NAME 1830/RADIAC Development							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	C/FP	Various	9.504	0.538	03/04	0.377	03/05	0.850	05/06	0.806	05/07		12.075		
Ancillary Hardware Development													0.000		
Component Development													0.000		
Ship Integration													0.000		
Ship Suitability													0.000		
Systems Engineering	WX	SPAWARSYSCEN Chasn.	1.100										1.100		
Training Development													0.000		
Licenses													0.000		
Tooling													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Product Development			10.604	0.538		0.377		0.850		0.806		0.000	13.175		
Remarks:															
Development Support	WX	NSWC Carderock	1.400	0.285	10/03	0.290	10/04	0.400	10/05	0.410	10/06		2.785		
Software Development													0.000		
Training Development													0.000		
Integrated Logistics Support													0.000		
Configuration Management													0.000		
Technical Data													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Support			1.400	0.285		0.290		0.400		0.410		0.000	2.785		
Remarks:															

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2005					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603542N/Radiological Controls				1830/RADIAC Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation	WX	SPAWARSYSCEN Chasn.	4.204	0.151	10/03	0.154	10/04	0.287	10/05	0.312	10/06		5.108		
Operational Test & Evaluation	WX	Various	0.329										0.329		
Live Fire Test & Evaluation													0.000		
Test Assets													0.000		
Tooling													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal T&E			4.533	0.151		0.154		0.287		0.312		0.000	5.437		
Remarks:															
Contractor Engineering Support													0.000		
Government Engineering Support	WX	SPAWARSYSCEN Chasn.	5.045										5.045		
Program Management Support	WX	SPAWARSYSCEN Chasn.	5.159	0.110	10/03	0.107	10/04	0.298	10/05	0.305	10/06		5.979		
Travel			0.325	0.010	10/03	0.010	10/04	0.010	10/05	0.100	10/06		0.455		
Labor (Research Personnel)													0.000		
SBIR Assessment													0.000		
Subtotal Management			10.529	0.120		0.117		0.308		0.405		0.000	11.479		
Remarks:															
Total Cost			27.066	1.094		0.938		1.845		1.933		0.000	32.876		
Remarks:															

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE:		February 2005	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE				
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /					BA4				
					PE 0603553N Surface ASW/1704 ASW Advanced Development				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Total PE Cost	13.569	19.843	17.343	18.012	18.592	19.040	19.507	19.936	
ASW Advanced Development/1704	11.647	17.464	17.343	18.012	18.592	19.040	19.507	19.936	
ASW Rick Reduction/9352	1.922								
Surface Vessel Torpedo Tude - Airbag Tech/9185		1.388							
Surface Ship Combat System Warfighting Enhancement/9525		0.991							
Defense Emergency Response Funds (DERF) Funds: N/A									
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:									
<p>The Anti Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Efforts focus on resolution of technical issues associated with providing capability against the Year 2005 and beyond threat with emphasis on shallow water/littoral area Undersea Warfare (USW) and on demonstration and validation of USW concepts and technology. Key technology areas include active sonar transmissions, advanced signal and data processing, active sonar classification, towed and hull arrays and transducer technology, multi-static sonar, and multi-sensor data fusion including multi-platform data fusion and netcentric undersea warfare concepts. This Program Element, 0603553N, has been designated to support Multi-Static Active ASW (MAASW) efforts associated with the Distant Thunder program and other emerging multi-static technologies, and the CNO's Task Force ASW initiative.</p> <p>The MAASW project conducts advanced development and testing of active multistatic acoustic concepts. The concept development is directed at providing surface ships combat groups with the capability of detection, classification, and localization of quiet threat submarines in difficult acoustic environments associated with Littoral waters. The project concentrates on the development of acoustic processor algorithms, alternative cost-effective active sources and information sharing technologies to develop a coordinated multi-static acoustic picture employing distributed sensors and active sources.</p> <p>The Task Force ASW (TF ASW) initiative is a focused effort to identify the most promising ASW technologies through a process of discovery, assessment and experimentation. TF ASW will coordinate the development of technologies which move beyond incremental or marginal improvements in ASW effectiveness. The CNO's vision of "fundamentally changing the way ASW is currently conducted to render the enemy submarine irrelevant against U.S. and coalition forces" necessitates a change in the calculus of how the US Navy conducts ASW. Central to TF ASW's achieving the CNO's vision are several innovative approaches which include using the art-of-the-technologically-possible; minimizing force-on-force; reducing the ASW end-to-end timeline; supporting rapid maneuver; developing off-board and distributed ASW detection systems; and finding innovative weapons solutions. To achieve these keys, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. The most promising technology concepts from government laboratories, university research centers, and industry are developed to the point where these technologies can be tested in at-sea experiments, with the objective of transitioning those which demonstrate exceptional capability to programs-of-record. In addition to developing and testing promising new technologies, an effective system of measuring the performance of existing and new surface ship ASW systems is essential to enable data based assessment of the capabilities and shortfalls in the performance of these systems in realistic scenarios through a Surface Ship Enhanced Measurement Program (SSEMP). By rigorously closing the feedback loop, SSEMP enables data based programmatic decision making for Surface Ship combat systems.</p>									
Congressional Adds:									
1. Project Unit 9352 will develop ASW Risk Reduction efforts.									
2. Project Unit 9185 will develop Surface Vessel Torpedo Tube - Airbag Technology.									
3. Project Unit 9525 will develop Surface Ship Combat System Warfighting Enhancements.									

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 1 of 8)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RD RDT&E N/BA4	PROGRAM ELEMENT NUMBER AND NAME PE 0603553N Surface ASW	PROJECT NUMBER AND NAME 1704 ASW Advanced Development																	
B. Accomplishments/Planned Program <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 2004</th> <th style="width: 15%;">FY 2005</th> <th style="width: 15%;">FY 2006</th> <th style="width: 15%;">FY 2007</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: right;">11.647</td> <td style="text-align: right;">17.464</td> <td style="text-align: right;">17.343</td> <td style="text-align: right;">18.012</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>MAASW/Distant Thunder - Migrated 2 of 3 key elements of processor to open systems architecture to support transition to SQQ-89 A(V)15 combat system. Transitioned the development environment for these software engines to an open systems architecture. Conducted at-sea testing and analyzed data collected to support processor improvement. Developed and began implementation of hardware technology refresh strategy. Obtained flight certification for P-3 AIP aircraft. FY05-FY07 plans include completing transition of remaining processor elements to opens systems architecure, completing hardware technology refresh, continuing spiral development of processor algorithms, developing improved shipboard mission planning tools (TACAID Play Book), and introducing new aircraft independent source technology.</p> <p>Task Force ASW - Conducted first TF ASW experiment of promising and inovative ASW technologies, collected and analyzed data, and reported results. Planned and conducted second TF ASW experiment and planned third experiment to test other promising technologies, including both industry and university affilitated esearch center proposed technologies. Issued an industry solicitation to obtain new technology ideas, and began strategic investment in the most promising transformational technologies derived from this solicitation. Initiated a Surface Ship Enhanced Measurement Program to begin collecting, analyzing, assessing and reporting on the performance of Surface Ship ASW systems to support results based decision making. FY05-FY07 plans include continued development of specific innovative technologies, procurement of reuseable test assets for specific technology concepts, continued investment in developing and testing the highest potential industry originated technology concepts, and continuing to peform data collection, analysis, assessment and reporting of Surface Ship ASW combat system performance under realistic conditions.</p> </div>						FY 2004	FY 2005	FY 2006	FY 2007	Accomplishments/Effort/Subtotal Cost	11.647	17.464	17.343	18.012	RDT&E Articles Quantity				
	FY 2004	FY 2005	FY 2006	FY 2007															
Accomplishments/Effort/Subtotal Cost	11.647	17.464	17.343	18.012															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA4	PE 0603553N Surface ASW	1704 ASW Advanced Development		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY 2005 President's Budget Controls	2.456	17.633	17.701	3.308
FY2006 President's Controls	11.647	17.464	17.343	18.012
Totals Adjustments	9.191	-0.169	-0.358	14.704
Summary of Adjustments				
Programmatic Adjustments			-0.202	14.866
Other Adjustments		-0.003	-0.156	-0.162
SBIR	-0.025			
NAVSEA Civilian				
Congressional Undistributed Reductions		-0.166		
Execution Realignment	9.222			
Cancelled Accounts	-0.006			
Subtotal	9.191	-0.169	-0.358	14.704
Schedule:				
N/A				
Technical:				
N/A				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME PE 0603553N Surface ASW	PROJECT NUMBER AND NAME 1704 ASW Advanced Development
<p>D. OTHER PROGRAM FUNDING SUMMARY: N/A</p>		
<p>E. ACQUISITION STRATEGY: *</p> <p>Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.</p>		
<p>F. MAJOR PERFORMERS: **</p> <p><u>Naval Air Warfare Center /PAX River, MD</u> – Maintain and install the two Air Multistatic Active ASW (MAASW(DT)) Rapid Deployment Kit (RDK) systems, lab test these systems and processor updates for these systems, and maintain NAVAIR authorization to install and fly this ADM system in P-3C and P-3C AIP TYCOM Aircraft.</p> <p><u>Naval Undersea Warfare Center, Newport, RI</u>– Provide management support in working with various administrative and operational organizations to develop and implement teams for MAASW Distant Thunder development and evaluation. Support laboratory and at-sea testing of Distant Thunder processor algorithms for ship installations. Perform planning, execution and analysis of experiments.</p> <p><u>Johns Hopkins University Applied Physics Laboratory, Laurel, MD</u> - Participate in experiment planning, execution and analysis, and lead the Surface Ship Enhanced Measurement Program (SSEMP) effort.</p>		

R-1 SHOPPING LIST - Item No. 44

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA4			PE 0603553N Surface ASW			1704 ASW Advanced Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Multistatic Sonar Development	WR	NUWC Newport	4.089	0.950	12/03	0.648	12/04	0.398	12/05	0.466	12/06	Continuous	Continuous	
Multistatic Sonar Development	WR	BATH MIN	0.021										0.021	
Multistatic Sonar Development	WR	PASCAGOULA MS	0.017										0.017	
Multistatic Sonar Development	WR	NAWC/Key West	0.010										0.010	
Multistatic Sonar Development	WR	NAWC/Pax River	1.513	0.000		0.161	12/04	0.100	12/05	0.100	12/06	Continuous	Continuous	
Multistatic Sonar Development	CPFF	BBN	3.332	0.265	12/03	0.088	12/04	0.150	12/05	0.150	12/06	Continuous	Continuous	
Multistatic Sonar Development	CPFF	APL/JHU	0.350										0.350	
Multistatic Sonar Development	RCP	FLT. Industry SUP Center	0.010										0.010	
Multistatic Sonar Development	RCP	ONR	0.472										0.472	
Various	Various	Various	0.542	0.159	03/04	0.000	02/04	0.255	01/06	0.255	01/07	Continuous	Continuous	
Subtotal Product Development			10.356	1.374		0.897		0.903		0.971		Continuous	Continuous	
Remarks:														
Developmental Test & Evaluation	WR	NUWC/Npt	2.505	0.000		0.400	11/04	0.315	11/05	0.655	11/06	Continuous	Continuous	
Developmental Test & Evaluation	WR	NAWC/Pax River	1.086	0.205	11/03	0.170	11/04	0.170	11/05	0.170	11/06	Continuous	Continuous	
Developmental Test & Evaluation	CPFF	BBN	0.623	0.400	11/03	0.300	11/04	0.300	11/05	0.300	11/06	Continuous	Continuous	
Developmental Test & Evaluation	CPFF	AAC				0.212								
Developmental Test & Evaluation	WR	SUPSHIP BATH MIN.	0.033										0.033	
Developmental Test & Evaluation	WR	NUWC/Keyport	0.933										0.933	
Developmental Test & Evaluation	WR	NSWC/Carderock, MD	0.695										0.695	
Developmental Test & Evaluation	WR	NSWC/Dahlgren, VA	0.040										0.040	
Developmental Test & Evaluation	WR	NSWC/Indian Head				0.035								
Developmental Test & Evaluation	CPFF	APL/JHU, MD	1.536										1.536	
Developmental Test & Evaluation	CPFF	ARL/UT	0.124	0.000		0.050	11/04	0.150	11/05	0.150	11/06	Continuous	Continuous	
Developmental Test & Evaluation	CPFF	Various	0.325	0.300	11/03	0.000	11/04	0.105	12/05	0.366	12/05	Continuous	Continuous	
Developmental Test & Evaluation	CPFF	Progeny, Inc.	1.217										1.217	
Developmental Test & Evaluation	CPFF	IPD	0.055										0.055	
Developmental Test & Evaluation	MIPR	U.S. ARMY/MITRE	0.000										0.000	
Developmental Test & Evaluation	WR	SPAWAR Systems Center	0.558										0.558	
Subtotal T&E			9.730	0.905		1.167		1.040		1.641		Continuous	Continuous	
Remarks:														

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 5 of 8)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA4			PE 0603553N Surface ASW			1704 ASW Advanced Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
At-Sea Test/Experiment (TFASN)	C/CPFF	JHU/APL, MD	0.000	1.100		4.000	11/04	4.000	10/05	4.000	10/06	Continuous	Continuous	
At-Sea Test/Experiment	WX	NAVSEA/NEWPORT, RI	0.000	2.300		8.000	11/04	8.000	10/05	8.000	10/06	Continuous	Continuous	
At-Sea Test/Experiment	RCP	ONR/ANTEON	0.000	0.930									0.930	
At-Sea Test/Experiment	RCP	ONR/BAE	0.000	1.800									1.800	
Enhanced Data Collection (SSEMP)	C/CPFF	JHU/APL, MD	0.000			2.000	11/04	2.000	10/05	2.000	10/06	Continuous	Continuous	
Enhanced Data Collection														
and Analysis (SSEMP)	Various	Various	0.000	2.981		1.000	11/04	1.000	10/05	1.000	10/06	Continuous	Continuous	
Subtotal T&E			0.000	9.111		15.000		15.000		15.000		0.000	39.111	
Remarks:														
Contractor Engineering Support														
SBIR														
Government Engineering Support														
Program Management Support	CPFF	Stanley Assoc.	0.539	0.132	01/04	0.350	01/05	0.350	01/06	0.350	01/07	Continuous	Continuous	
Program Management Support	CPFF	Anteon Corp.	0.050	0.075	01/04	0.000		0.000		0.000		Continuous	Continuous	
Travel			0.060	0.050	10/04	0.050	11/04	0.050	11/05	0.050	11/06	Continuous	Continuous	
Labor (Research Personnel)														
Overhead														
Subtotal Management			0.649	0.257		0.400		0.400		0.400		Continuous	Continuous	
Remarks:														
Total Cost			20.735	11.647		17.464		17.343		18.012		Continuous	Continuous	
Remarks:														

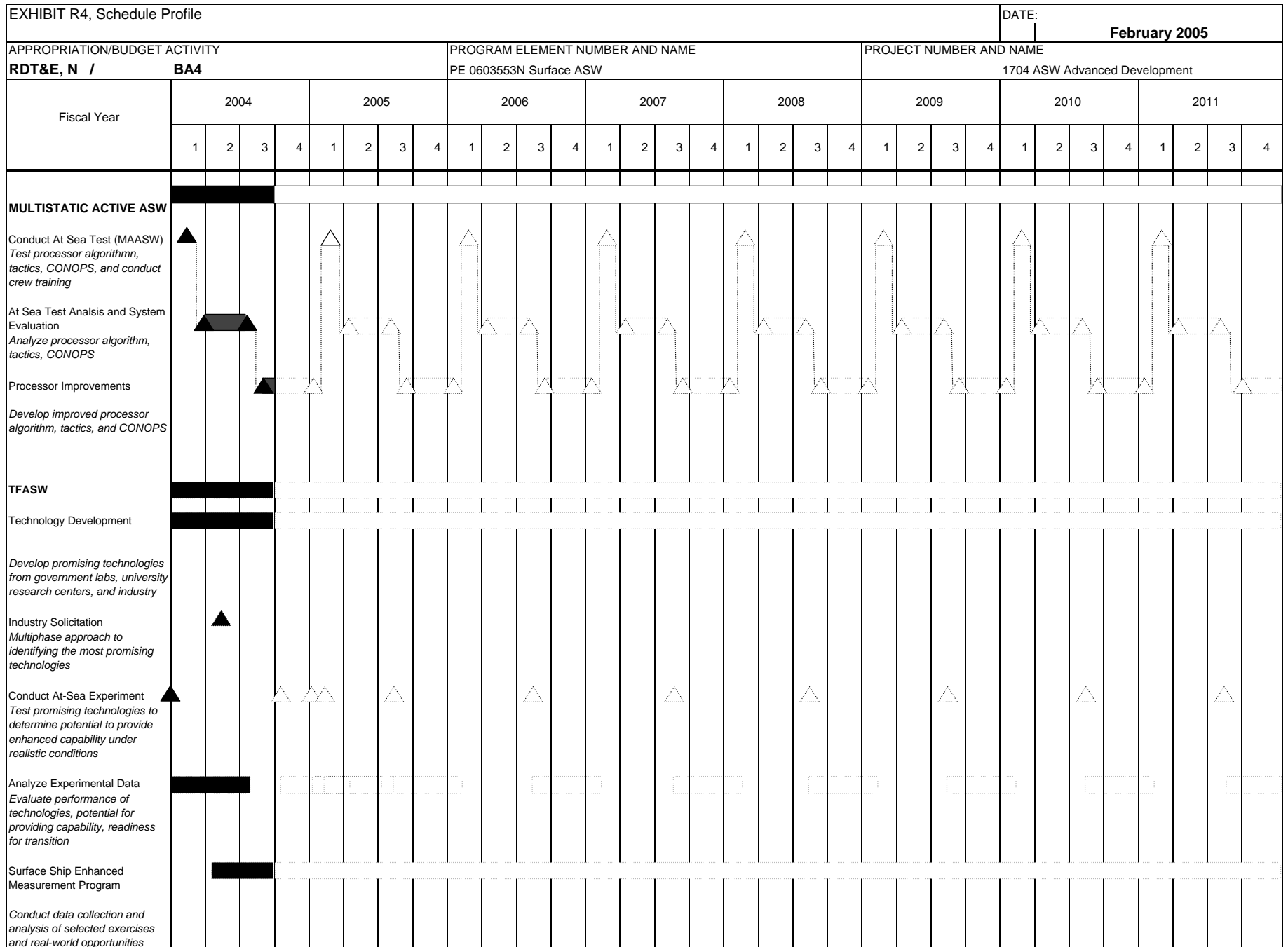
R-1 SHOPPING LIST - Item No. 44

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 6 of 8)

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CLASSIFICATION:



R-1 SHOPPING LIST - Item No. 44

* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 7 of 8)

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CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 44

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 8 of 8)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4			R-1 ITEM NOMENCLATURE PE 0603559N SSGN DESIGN					
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	66.836	19.777	24.020	23.797	0.000	0.000	0.000	0.000
SSGN Design/2413	65.682	19.777	24.020	23.797	0.000	0.000	0.000	0.000
Tactical Naval Fires Capabilities/9353	1.154	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Covert striking power against targets ashore; the capability to establish covertly an expeditionary force on land. Working both independently and with a battle group/other ships, the OHIO Class SSGN will have the endurance and payload to prepare the battle space and to continue to project maritime power throughout a conflict. Project 9353 supports integration of the Tactical Naval Fires Capabilities as part of the SSGN conversion. The primary focus of this effort is for the demonstration of a series of telemetered floating capsule release tests to confirm modeling and simulation. A supporting effort will provide a web-based collaboration tool for payload integration into the SSGN. A design effort will be conducted to look at the lowest cost and quickest path to getting encapsulated payloads onto the SSGN.</p> <p>Project Unit 9353 Tactical Naval Fires Capabilities is a Congressional plus-up.</p>								

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603559N SSGN	PROJECT NUMBER AND NAME 2413 SSGN Design																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">7.833</td><td style="text-align: center;">1.584</td><td style="text-align: center;">1.700</td><td style="text-align: center;">0.200</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	7.833	1.584	1.700	0.200	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	7.833	1.584	1.700	0.200															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">31.748</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	31.748	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	31.748	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">21.889</td><td style="text-align: center;">16.385</td><td style="text-align: center;">21.398</td><td style="text-align: center;">23.407</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	21.889	16.385	21.398	23.407	RDT&E Articles Quantity				
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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603559N SSGN	PROJECT NUMBER AND NAME 2413 SSGN Design		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	4.212	1.808	0.922	0.190
RDT&E Articles Quantity				
<p>(U) FY04 - FY07 accomplishments and plans consist of Non-Propulsion Electronics System (NPES) development and non-recurring system development including Data Processing System (DPS), Global Command and Control System (GCCS-M), Tactical Integrated Digital System (TIDS), AN/BQN-17, NPES/AWS Wide Area Network, Common Submarine Radio Room (CSRR) and Interior Communications/Data Transfer System (IC/DTS).</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																																							
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<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 50%;"></th> <th style="text-align: right; width: 12.5%;">FY 2004</th> <th style="text-align: right; width: 12.5%;">FY 2005</th> <th style="text-align: right; width: 12.5%;">FY 2006</th> <th style="text-align: right; width: 12.5%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">68.988</td> <td style="text-align: right;">19.970</td> <td style="text-align: right;">22.020</td> <td style="text-align: right;">22.197</td> </tr> <tr> <td>FY06/07 President's Budget:</td> <td style="text-align: right;">65.682</td> <td style="text-align: right;">19.777</td> <td style="text-align: right;">24.020</td> <td style="text-align: right;">23.797</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">(3.306)</td> <td style="text-align: right; border-top: 1px solid black;">(0.193)</td> <td style="text-align: right; border-top: 1px solid black;">2.000</td> <td style="text-align: right; border-top: 1px solid black;">1.600</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> FY 2004 Cancelled Accounts</td> <td style="text-align: right;">(0.354)</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Management Improvements</td> <td style="text-align: right;">(0.586)</td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR Assessment</td> <td style="text-align: right;">(1.640)</td> <td></td> <td></td> <td></td> </tr> <tr> <td> SPAWAR Service Cost Center</td> <td style="text-align: right;">(0.002)</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Undistributed congressional reductions</td> <td style="text-align: right;">(0.063)</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Programmatic Adjustments</td> <td></td> <td style="text-align: right;">(0.193)</td> <td style="text-align: right;">2.000</td> <td style="text-align: right;">1.600</td> </tr> <tr> <td> Execution Realignments</td> <td style="text-align: right;">(0.661)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">(3.306)</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">(0.193)</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">2.000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">1.600</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 20px;">Not applicable</p> <p style="margin-top: 20px;">Technical:</p> <p style="margin-left: 20px;">Not applicable</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					FY05 President's Budget	68.988	19.970	22.020	22.197	FY06/07 President's Budget:	65.682	19.777	24.020	23.797	Total Adjustments	(3.306)	(0.193)	2.000	1.600	Summary of Adjustments					FY 2004 Cancelled Accounts	(0.354)				Management Improvements	(0.586)				SBIR Assessment	(1.640)				SPAWAR Service Cost Center	(0.002)				Undistributed congressional reductions	(0.063)				Programmatic Adjustments		(0.193)	2.000	1.600	Execution Realignments	(0.661)				Subtotal	(3.306)	(0.193)	2.000	1.600
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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603559N SSGN			PROJECT NUMBER AND NAME 2413 SSGN Design					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U)BLI 201700 /SSGN CONVERSION SCN	1156.408	515.134	286.358	0.000	0.000	0.000	0.000	0.000	0.000	1,957.900
E. ACQUISITION STRATEGY:										
(U) To refuel, overhaul, convert and deliver four (4) Trident Submarines into land attack strike and Special Operating Force platforms. The SSGN program will utilize a streamlined acquisition approach that was approved by USD (AT&L) January 2002. Due to the low technical risk of the SSGN program, the SSGN program proceeded directly to Milestone C which was approved on 5 December 2002.										
F. MAJOR PERFORMERS:										
Perot Systems Government Services, Alexandria, Virginia: Technical support and program management support.										
Electric Boat, Groton, Connecticut: Conversion design studies.										
NSWC Carderock, Bethesda, Maryland: Hydrodynamic studies, safety program management, ship control system development, T&E , Systems Integration Team (SIT) support, MAC design.										
NUWC Newport, Newport, Rhode Island: Engineering support and NPES design										
Northrup Grumman Marine Systems, Sunnyvale, CA.: MAC DEM/VAL										
General Dynamics Advanced Information Systems, Pittsfield, MA: AWCS										
Naval Warfare Assessment Station, Corona, CA.: MAC Launcher support										
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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME							
RDT&E,N/BA-4			PE 0603559N SSGN					2413 SSGN Design							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	(1) FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development													0.000		
Ancillary Hardware Development													0.000		
Design Studies	SS/CPFF	Electric Boat, Groton, CT	42.883	7.833	Dec-03	1.584	Nov-04	1.700	Nov-05	0.200	N/A	0.000	54.200	54.200	
Systems Engineering	WX	NSWC Carderock, MD	14.856	2.521	Nov-03	2.522	Oct-04	2.699	Oct-05	2.118	Oct-06	0.000	24.716	N/A	
Systems Engineering	WX	NUWC, Newport, RI	15.881	3.981	Oct-03	2.866	Oct-04	3.336	Oct-05	0.895	Oct-06	0.000	26.959	N/A	
MAC Launcher	PD	SSP/Various	66.182	24.250	Jan-04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	90.432	N/A	
Attack Weapon Control System	PD	SSP/Various	22.302	2.100	Jan-04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	24.402	N/A	
Facilities/SE&I/Training/Procedures &	PD	SSP/Various	6.887	4.208	Jan-04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.095	N/A	
MAC Launcher/AWCS/SE&I/Facilities	C/CPFF	JHU/APL, Laurel, MD.	6.893	1.190	Apr-04	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.082	8.082	
Systems Engineering	Various	Various	12.108	7.966	Various	4.116	Various	4.185	Various	1.503	Various	0.000	29.879	N/A	
Misc.	Various	Various	0.514	0.200	Various	0.298	Various	0.215	Various	0.169	Various	0.000	1.396	N/A	

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Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RD&E,N/BA-4			PROGRAM ELEMENT PE 0603559N SSGN					PROJECT NUMBER AND NAME 2413 SSGN Design						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	(1) FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NSWC, Carderock, MD	0.169	0.135	Jan-04	0.620	Oct-04	1.525	Oct-05	0.750	Oct-06	0.000	3.199	N/A
Developmental Test & Evaluation	WX	NUWC, Newport, RI	4.198	8.315	Oct-03	3.273	Oct-04	3.434	Oct-05	2.683	Oct-06	0.000	21.903	N/A
Live Fire Test & Evaluation	RC/WR	NAVAIR Patuxent River, MD	0.000	0.052	Dec-03	1.300	Oct-04	3.550	Oct-05	9.000	Oct-06	0.000	13.902	N/A
Live Fire Test & Evaluation	WX	NSWC, Carderock, MD	1.327	0.483	Jan-04	0.620	Oct-04	0.770	Oct-05	1.050	Oct-06	0.000	4.250	N/A
Operational Test & Evaluation	WX	COMOPTEVFOR	0.182	0.153	Jan-04	0.165	Oct-04	0.178	Oct-05	3.487	Oct-06	0.000	4.165	N/A
Miscellaneous	Various	Various	0.057	0.085	Various	0.100	Various	0.230	Various	0.110	Various	0.000	0.582	N/A
GFE														
Award Fees														
Subtotal T&E			5.932	9.223		6.078		9.687		17.080		0.000	48.001	
Remarks:														
Contractor Engineering Support	C/MAC	Various	6.714	1.968	Mar-04	2.312	Nov-04	2.198	Feb-05	1.832	Nov-05	0.000	15.024	15.024
Government Engineering Support														
Program Management Support	Various	Various	1.200	0.242	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	1.442	1.442
Labor (Research Personnel)														
Overhead														
Subtotal Management			7.914	2.210		2.312		2.198		1.832		0.000	16.465	
Remarks:														
R-1 SHOPPING LIST - Item No. 45														
Total Cost			202.352	65.682		19.777		24.020		23.797		0.000	335.628	
Remarks:														

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4		PROJECT NUMBER AND NAME 9353 Tactical Naval Fires Capability

B. (U) Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Tactical Naval Fires Capability		0.0	1.154	0.0
RDT&E Articles Quantity				

-
- (U) FY 2004 PLAN
 - (U) (\$1.2) Initiated Tactical Naval Fires Capabilities. Full obligation is projected by the 2nd quarter of the 2nd year
 - FY 2004 efforts include:
 - (U) Provide integration support for capsules and flexible payload modules into experiments planned for Oct 2004 (Silent Hammer).
 - (U) Provide SSGN web-based collaboration tools, such that 3D models of the SSGN missile tube and examples of other payload integration efforts are available for other payload providers. This will reduce costs for future experiments and payload integrators.
 - (U) Provide for conducting critical experiments on capsule concepts and for future payload integration efforts by reserving and protecting critical components

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4	PROJECT NUMBER AND NAME 9353 Tactical Naval Fires Capabilities	

C. (U) Other Program Funding Summary: (Dollars in Thousands)

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Total Complete</u>	<u>Total Cost</u>
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

D. (U) Acquisition Strategy:

Contracts will continue to be awarded to those sources who were engaged in the SSGN development and integration as well as collaborative tool efforts.
Full and open competition will be conducted for the capsule design efforts.

E. (U) Major Performers:

SSGN Integration: BAE/Lockheed Martin
SSGN Collaborative Tool: General Dynamics (Electric Boat)/APL
SSGN Capsule Design: Competition - TBD

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Exhibit R-3 Cost Analysis						DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4				PROGRAM ELEMENT PE 0603559N SSGN Design			PROJECT NUMBER AND NAME 9353 Tactical Naval Fires Capabilities				

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
<u>Support & Management</u>												
SSGN Integration	CPFF	BAE / MD				0.100	03-04			0.000	0.100	0.100
SSGN Collaborative Tool	WR	NSEA/ VA				0.336	03-04			0.000	0.336	0.336
SSGN Collaborative Tool	WR	APL / MD				0.100	07-04			0.000	0.100	0.100
SSGN Capsule Design	TBD	TBD				0.368	TBD			0.000	0.368	0.368
SSGN Capsule Design	WR	NUWC/NPT / CN				0.100	07-04			0.000	0.100	0.100
SSGN Capsule Design	WR	NSWC /VA				0.150	07-04			0.000	0.150	0.150
Subtotal Product Development			0.0	0.0		1.154		0.0		0.000	1.154	1.154

Remarks:

Total Cost			0.0	0.0		1.154		0.0		0.000	1.154	1.154

Remarks:

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Exhibit R-3 Project Cost Analysis
(Exhibit R3, page 10 of 10)

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4					R-1 ITEM NOMENCLATURE Advanced Submarine Systems Development/0603561N			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	85.693	88.188	162.953	208.732	225.092	247.091	249.240	227.436
Adv. Sub. Systems Development/2033	49.155	39.058	100.728	147.742	156.788	191.738	191.932	166.659
Rotary Electromagnetic Torpedo Launcher/9191	0.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Adv. Sub. Combat Sys. Dev/0223	25.721	44.474	62.225	60.990	68.304	55.353	57.308	60.777
Fiber Optic Multi-Line Towed Array/9189	5.784	1.585	0.000	0.000	0.000	0.000	0.000	0.000
MK 48 ADCAP Torpedo Improve/9039	4.047	2.080	0.000	0.000	0.000	0.000	0.000	0.000
Speciality Optical Fiber w/ Embedded Sensors/9526	0.000	0.991	0.000	0.000	0.000	0.000	0.000	0.000

Defense Emergency Response Funds (DERF) Funds: N/A

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program element supports innovative research and development in submarine hull and combat systems technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible. The program element also supports programs transitioning from Future Naval Capabilities (FNC's).

Project Unit 2033: The Advanced Submarine Research and Development (R&D) Program is a non-ACAT program that transitions Hull, Mechanical, and Electrical (HM&E) technologies from Science and Technology (S&T) to platforms, provides the genesis for submarine design and naval architecture products destined for backfit, forward fit, and/or future submarines, and operates unique R&D experimentation, modeling, and simulation facilities to enhance submarine stealth, maneuverability, and affordability. The program is structured to support near term VIRGINIA Class technology insertion, future submarine concepts, and core technologies. Focus is on the four SEA POWER 21 warfighting pillars, SEA BASE, SEA SHIELD, FORCENET, and SEA STRIKE. Focus is also on SEA TRIAL. SEA TRIALS emphasize warfighting capabilities in the areas of Anti-Submarine Warfare, Mine Countermeasures, Strike Warfare, and Counter Weapons of Mass Destruction. Payloads and Sensors demonstrations and SEA TRIALS conducted in a joint warfighting context with other services, i.e. the U.S. Marines, U.S. Army, and the U.S. Air Force, enable early assessment of warfighting capabilities contributing to better technology selection decisions for potential spiral development. This program also supports Information Exchange Programs with the United Kingdom and Canada.

Congress appropriated the following FY04 Congressional Adds: \$2.500M for Advanced Composite Sail Phase II, \$7.400M for High Performance Metal Fiber Brushes, \$10.000M for Submarine Payloads and Sensors, and \$10.000M for Advanced Submarine Technology.

Congress included the following changes to the FY05 President's Budget in the FY05 Defense Appropriation Act: +\$5.000M for Payloads and Sensors, +\$1.400M for Advanced Composite Structure Programs, +\$2.100M for MK-48 ADCAP torpedo improvement program, +\$1.600M for Fiber Optic TB-16 Towed Array, +\$1.000M for Improved Tactical Control in submarine Systems, +\$2.000M for Special Optical Fiber with Embedded Sensors, and -\$5.000M for Development and Demonstration of UUV in Submarine Operations.

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE:
		February 2005
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4	Advanced Submarine Systems Development/0603561N	
<p>Project Unit 0223: The Advanced Submarine Combat Systems Development non-acquisition (Non-ACAT) program supports the Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and combat control systems improvements. This program element transitions technologies developed by Navy technology bases, the private sector, Office of Naval Research (ONR), Future Naval Capabilities and the Defense Advanced Research Projects Agency. The program addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battlespace preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Specifically, the focus of the technology efforts will be Advanced Processing Build-Acoustic (APB-A) and Advanced Processing Build-Tactical (APB-T) tactical control and Advanced Hull Arrays.. APB's develop and demonstrate improvements to current and future sonar/combat control systems. Program is funded under demonstration and validation because it develops and integrates hardware for experimental test related to specific platform applications.</p>		
<p>Project Unit 9039 is congressional add to develop MK48 ADCAP torpedo improvements.</p>		
<p>Project Unit 9189 is acongressional add to develop Fiber Optic Mulit-Line Towed Array.</p>		
<p>Project Unit 9191 is congressional add to develop Rotary Electromagnetic Torpedo Launcher.</p>		
<p>Project Unit 9526 is congressional add to develop Speciality Optical Fiber with Embedded Sensors improvements.</p>		

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603561N Advanced Submarine Systems Development				PROJECT NUMBER AND NAME 2033/Advanced Submarine Systems Development			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
2033/Adv. Sub. Systems Development	49.155	39.058	100.728	147.742	156.788	191.738	191.932	166.659
RDT&E Articles Qty								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
<p>This program supports innovative research and development in submarine hull and combat systems technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible. The program element also supports programs transitioning from Future Naval Capabilities (FNC's).</p> <p>Project Unit 2033: The Advanced Submarine Research and Development (R&D) Program is a non-ACAT program that transitions Hull, Mechanical, and Electrical (HM&E) technologies from Science and Technology (S&T) to platforms, provides the genesis for submarine design and naval architecture products destined for backfit, forward fit, and/or future submarines, and operates unique R&D experimentation, modeling, and simulation facilities to enhance submarine stealth, maneuverability, and affordability. The program is structured to support near term VIRGINIA Class technology insertion, future submarine concepts, and core technologies. Focus is on the four SEA POWER 21 warfighting pillars, SEA BASE, SEA SHIELD, FORCENET, and SEA STRIKE. Focus is also on SEA TRIAL. SEA TRIALS emphasize warfighting capabilities in the areas of Anti-Submarine Warfare, Mine Countermeasures, Strike Warfare, and Counter Weapons of Mass Destruction. Payloads and Sensors demonstrations and SEA TRIALS conducted in a joint warfighting context with other services, i.e. the U.S. Marines, U.S. Army, and the U.S. Air Force, enable early assessment of warfighting capabilities contributing to better technology selection decisions for potential spiral development. This program also supports Information Exchange Programs with the United Kingdom and Canada.</p> <p>Congress appropriated the following FY04 Congressional Adds: \$2.500M for Advanced Composite Sail Phase II, \$7.400M for High Performance Metal Fiber Brushes, \$10.000M for Submarine Payloads and Sensors, and \$10.000M for Advanced Submarine Technology.</p> <p>Congress included the following changes to the FY05 President's Budget in the FY05 Defense Appropriation Act: +\$5.000M for Payloads and Sensors, +\$1.400M for Advanced Composite Structure Programs, and -\$5.000M for Development and Demonstration of UUV in Submarine Operations.</p>								

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 3 OF 23)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2004
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603561N Advanced Submarine Systems Development	PROJECT NUMBER AND NAME 2033/Advanced Submarine Systems Development

B. Accomplishments/Planned Program

	FY 04	FY 05	FY06	FY07
Payloads and Sensors/Subtotal Cost	26.894	14.510	18.132	16.542
RDT&E Articles Quantity				

Pursue development of promising technologies and or concepts capable of revolutionizing submarine design, improving payload flexibility, reducing weight and space requirements, exploring alternative payload launch mechanisms, increasing reliability with concomitant decreases in required maintenance, and improving material strength. Develop payload demonstrations targeted at improving flexible ocean interface, Intelligence/Surveillance/Reconnaissance (ISR) requirements, and universal encapsulation methods from undersea platforms. Conduct joint SEA TRIALS that take the demonstrations to the Fleet in order to assess the operational value of the technologies and systems under consideration. The SEA TRIALS/experiments support examination and assessment of potential new Fleet capabilities based on the Sea Power 21 Pillars of SEA SHIELD, SEA BASING, SEA STRIKE, and FORCENET. Develop and demonstrate promising and innovative maneuvering-related concepts and methods to improve maneuvering performance in the littoral and ability to deliver payloads.

FY04 Accomplishments include the following: defined the specifications for submarine electric actuation systems designed to replace maintenance intensive hydraulic actuation systems and procured prototype electric systems for testing commencing in FY05, completed energy storage systems source solicitation and prototype launch motor design for full scale electromagnetic launcher prototype at the Naval Undersea Warfare Center using the launch test facility, completed development of analytic modeling techniques for fatigue and shock loading and validation of critical design elements for the Composite Advanced Sail targeted for insertion in the FY09 VIRGINIA ship. FY04 accomplishments for SILENT HAMMER include: Flexible Payload Module (FPM) and Stealthy Affordable Capsule System (SACS) off-hull testing of universal encapsulation prior to the SILENT HAMMER experiment, execution of the Risk reduction Limited Objective Experiment (LOE) with the TRIDENT WARRIOR 04 experiment, development of the SSGN Battle Management Center (BMC), initiation of an Experiment Data Collection and Analysis Plan (DCAP), and preparation/installation of the Temporary Alteration (TEMPALT) onboard the USS Georgia. FY04 accomplishments for Task Force ASW Experiment 04: UNDERSEA DOMINANCE and theater ASW Exercise 04 include: development of a Concept of Operations (CONOPS), a baseline Mission Analysis to determine capability prior to introduction of experiment objectives, the Test and Evaluation Measurement Plan, the Measurement Analysis Plan (MAP), preparation/installation of TEMPALTS onboard three SSNs, two SSKs, two Cruiser-Destroyers (CRUDES), one P-3 Maritime Patrol Aircraft, two SURTASS ships, and two Auxiliary ships, and the experiment Schedule of Events and Water-Space Management Plans. FY04 accomplishments for maneuvering and control include: developed a maneuvering simulation software and trial data base tool, fabricated and tested a Flexible Tab Assisted Control System demonstrating the potential to improve low-speed maneuvering performance at reduced costs without using traditional steering and diving hardware and hydraulics, and opened the Center for Concept Visualization (CCV) at the Hydrodynamic/Hydroacoustic Technology Center.

FY04 includes a Congressional Add of \$2.500M for the procurement of full scale critical elements and an expanded shock modeling and validation of the Composite Advanced Sail, one \$10.000M Congressional Add for Submarine Payloads and Sensors, and a second \$10.000M Congressional Add for Advanced Submarine Technology.

FY05 includes a Congressional Add of \$1.4M for the Advanced Composite Structures Program and a \$5M Congressional Add for Payloads and Sensors..

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603561N Advanced Submarine Systems Developmen	PROJECT NUMBER AND NAME Advanced Submarine Systems Development/2033

B. Accomplishments/Planned Program (Cont.)

	FY 04	FY 05	FY06	FY07
Stealth/Subtotal Cost	11.913	17.990	17.518	14.498
RDT&E Articles Quantity				

Pursue technologies and tools to increase the safety of submarines by recognizing and mitigating sources of noise, improving the probability of safe transit in the vicinity of mine fields, ensuring that submarines can penetrate contested waters by reduced acoustic observables, and remaining undetected in the littorals. Operate the Large Scale Vehicles (LSV 1 and LSV 2) and the Intermediate Scale Measurement System (ISMS) at Lake Pend Oreille, Idaho to conduct large model experiments for submarines focusing on stealth, maneuvering and control, affordability, and operational effectiveness.

FY04 accomplishments include: completed piping radiated prediction model, identified outer decoupler material for Conformal Acoustic Velocity Sonar (CAVES), managed an Electromagnetic Project Arrangement with the United Kingdom, completed preliminary wake-signature assessments for VIRGINIA, conducted 17 successful LSV 1 underway operations for VIRGINIA class steel sail project leading to reduced full scale radiated noise signature, conducted six successful LSV 2 underway operations leading to LSV 2 Acceptance and Characterization, retired LSV 1, and completed maintenance overhaul of ISMS resulting in the system being ready to support advanced submarine and surface ship technology assessments leading to improved submarine stealth and combat system performance.

	FY 04	FY 05	FY06	FY07
Total Ownership/Affordability/Subtotal Cost	7.241	0.263	0.000	0.000
RDT&E Articles Quantity				

Demonstrate technologies that have the potential to reduce total life cycle costs of the system by providing reduced construction costs, longer life of parts, and/or lower maintenance requirements.

FY04 accomplishments include: laboratory testing of Higher Performance Brush Technology (HPBT) on the DC end of a 500 KW motor generator set, developed an alternate rotor protection methodology for use with HPBT, and developed an OPALT for the DC end of the 500 KW motor generator set. FY04 includes a Congressional Add of \$7.400M which was used to expand application to other motors and generators. Efforts in FY05 will also address scaling up prototype manufacturing processes to production rate processes.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603561N Advanced Submarine Systems Development	PROJECT NUMBER AND NAME Advanced Submarine Systems Development/2033		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY06	FY07
Advanced Propulsion/Ship Concept Development/Subtotal Costs	3.107	6.295	65.078	116.702
RDT&E Articles Quantity				
<p>DARPA/NAVY TANGO BRAVO: Overcome selected technological barriers that are expected to have significant impact on submarine hull, mechanical, and electrical (HM&E) systems to enable design options for a reduced-size submarine with VIRGINIA Class capability in five technical areas: Shaftless Propulsion, External Weapon Stow and Launch, Hull Adaptable Sonar Array, Radical Ship (HM&E) Infrastructure Reduction, Reduced Crew/Automated Attack Center.</p> <p>FY 05 and FY06: Funding level for each technology area is not predetermined. in each of the five technology areas, subject to scope of tasks awarded, complete Detailed system design and modeling, Innovative system development, Concept demonstration, and Full scale performance prediction</p> <p>FY07: For technologies selected for further development, complete demonstrator builds and demonstrations and conduct limited at-sea testing where applicable</p> <p>UNDERSEA SUPERIORITY SYSTEM: Pursue design of a future undersea superiority alternative to the reduced submarine program including consideration of alternate propulsion methods. The project will incorporate technologies developed through technology demonstrations under the joint DARPA/Navy Tango Bravo initiative. The scope of work will result in a preliminary design and acquisition plan.</p> <p>FY06 Planned accomplishments include: Establish threshold and objective cost goals, draft operational requirements, complete concept development, develop draft CONOPS, finalize acquisition strategy, conduct Milestone A.</p> <p>FY07 Planned accomplishments include: Initiate preliminary design of preferred alternative (completes FY08), develop Test, Evaluation, and system Engineering plans, and investigate environment, safety, and occupational health associated with new technologies, integrate DARPA/Navy Tango Bravo technologies.</p> <p>ADVANCED PROPULSION: Develop submarine alternative propulsion and stern configurations with potential to significantly reduce submarine acquisition cost. Demonstrate maneuvering, stealth, and other critical performance parameters via Appropriate Scale Demonstrators in realistic environmental conditions.</p> <p>FY04 accomplishments include the following: completed initial hydrodynamic design of the Improved Advanced Hybrid propulsor that potentially reduces propulsor changeout time, completed Main Seawater Pump pipe loop test on a Distributed Pump and Jet Propulsion model, and demonstrated Gap Control Technology performance improvements in the High Reynolds Number Pump (HIREP) Facility at the Pennsylvania State University/Applied Research Laboratory.</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603561N Advanced Submarine Systems Development	PROJECT NUMBER AND NAME 2033/Advanced Submarine Systems Development/0603561N		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY2007
FY05 President's Budget	54.687	38.155	53.571	51.758
FY06 President's Budget	49.155	39.058	100.728	147.742
Total Adjustments	-5.532	0.903	47.157	95.984
Summary of Adjustments				
FY04 OMNIBUS VIRGINIA Class Submarine	-4.050			
Execution Realignment	-0.400			
Cancelled Accounts	-0.064			
Advanced Composite Structures		1.400		
Develop & Demonstrate UUV in Sub Operations		-5.000		
Submarine Payloads & Sensors		5.000		
Undistributed congressional reductions	-1.018	-0.497	-1.616	-3.065
Programmatic adjustments			48.773	99.049
Subtotal	-5.532	0.903	47.157	95.984

Schedule: not applicable.

Technical: not applicable.

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EXHIBIT R-2a, RDT&E Project Justification						DATE:		February 2005																																																																														
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME																																																																																	
RDT&E, N / BA-4		PE0603561N Advanced Submarine Systems Development			Advanced Submarine Systems Development/2033																																																																																	
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <table border="1"> <thead> <tr> <th>Line Item No. & Name</th> <th>FY 2004</th> <th>FY 2005</th> <th>FY 2006</th> <th>FY 2007</th> <th>FY 2008</th> <th>FY 2009</th> <th>FY 2010</th> <th>FY 2011</th> <th>To Complete</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td colspan="11">Not applicable.</td> </tr> </tbody> </table>										Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost	Not applicable.																																																																	
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<p>E. ACQUISITION STRATEGY:</p> <p>Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.</p>																																																																																						
<p>F. MAJOR PERFORMERS:</p> <table border="1"> <tbody> <tr> <td>Newport News Shipbuild, Newport News, Va R&D Support</td> <td>12/03</td> <td>12/04</td> <td>12/05</td> <td>12/06</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Electric Boat Corp., Groton, CT. R&D support</td> <td>12/03</td> <td>12/04</td> <td>12/05</td> <td>12/06</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Noesis, Inc., Manassas, Va. Fiber Brush R&D</td> <td>12/03</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Naval Surf Warfare Ctr, Carderock, MD. R&D support</td> <td>10/03</td> <td>10/04</td> <td>10/05</td> <td>10/06</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Naval Undersea Warfare Ctr, Newport, R.I. R&D support</td> <td>10/03</td> <td>10/04</td> <td>10/05</td> <td>10/06</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Raytheon, Portsmouth, RI</td> <td>01/04</td> <td></td> <td>12/05</td> <td>12/06</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Lockheed Martin, Manassas, VA</td> <td>01/04</td> <td></td> <td>12/05</td> <td>12/06</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										Newport News Shipbuild, Newport News, Va R&D Support	12/03	12/04	12/05	12/06							Electric Boat Corp., Groton, CT. R&D support	12/03	12/04	12/05	12/06							Noesis, Inc., Manassas, Va. Fiber Brush R&D	12/03										Naval Surf Warfare Ctr, Carderock, MD. R&D support	10/03	10/04	10/05	10/06							Naval Undersea Warfare Ctr, Newport, R.I. R&D support	10/03	10/04	10/05	10/06							Raytheon, Portsmouth, RI	01/04		12/05	12/06							Lockheed Martin, Manassas, VA	01/04		12/05	12/06						
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Lockheed Martin, Manassas, VA	01/04		12/05	12/06																																																																																		

R-1 SHOPPING LIST - Item No. 46

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY RDTE, N/BA-4			PROGRAM ELEMENT PE0603561N Advanced Submarine Systems Developme			PROJECT NAME AND NUMBER Advanced Submarine Systems Development/2033								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY05 Cost	FY 05 Award Date	FY06 Cost	FY 06 Award Date	FY07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Targ Value of Contract
Product Development	S/CPFF	NNS Newport News, VA	61.036	0.065	12/03							0.000	61.101	67.224
Product Development	S/CPIF	NNS Newport News, VA	24.219	0.602	12/03	0.587	12/04	2.047	12/05	1.970	12/06	17.216	44.671	44.671
Product Development	S/CPFF	EB Groton, CT	79.037	1.478	12/03	0.624	12/04	1.651	12/05	1.645	12/06	0.770	83.560	83.560
Product Development	S/CPFF	National Design Team	0.000	0.000		0.000		25.000	10/05	60.000	10/06	TBD	TBD	TBD
Product Development	WR	NSWC Bethesda, MD	235.893	16.186	10/03	19.874	10/04	27.954	10/05	34.703	10/06	CONT.	CONT.	
Product Development	S/CPFF	ARL/PSU, State College,P	35.028	1.387	12/03	1.285	12/04	1.534	12/05	1.400	12/06	CONT.	CONT.	
Product Development	S/CPFF	Noesis	12.157	1.461	12/03								13.618	13.618
Product Development	S/CPFF	Noesis	0.000	5.448	06/04							0.000	0.000	5.727
Product Development	Various	Various	97.468	4.906	Various	0.928	Various	7.129	Various	4.966	Various	CONT.	CONT.	
Product Development	WX	NUWC Newport	0.000	1.115	Various	1.378	10/04	8.439	10/05	15.985	10/06	CONT.	CONT.	
Product Development	S/CPFF	Raytheon	0.971	0.000		1.225	01/05					0.000	2.196	
Product Development	S/CPFF	Lockheed Martin	0.185	0.000		3.350	03/05					0.000	3.535	
Subtotal Product Development			545.994	32.648		29.251		73.754		120.669				
Remarks:														
Development Support Equipment													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER								
RDT&E, N/BA-4			PE0603561N Advanced Submarine Systems Development			Advanced Submarine Systems Development/2033								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY05 Cost	FY05 Award Date	FY06 Cost	FY06 Award Date	FY07 Cost	FY07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & E	S/CPFF	Raytheon	9.560	3.000	01/04			3.600	12/05	3.600	12/06	TBD	TBD	
Developmental Test & E	S/CPFF	Lockheed Martin	0.400	5.100	01/04			6.150	12/05	6.100	12/06	TBD	TBD	
Developmental Test & E	Various	Various	0.640	0.937	Various	0.870	Various	3.263	Various	3.283	Various	CONT.	CONT.	
Developmental Test & E	S/CPFF	MIT Lincoln Lab	0.000	0.600	04/04	2.000	11/04					0.000	2.600	
Developmental Test & E	WX	SSC San Diego	0.000	1.600	06/04	0.860	10/04					0.000	2.460	
Developmental Test & E	WX	NUWC Newport	0.000	0.650	05/04	0.634	10/04	0.751	10/05	0.751	10/06	CONT.	CONT.	
Developmental Test & E	S/CPFF	JHU/APL	0.000	0.459	05/04	1.540	12/04					0.000	1.999	
Developmental Test & E	S/CPFF	UT/ARL	0.000	0.300	07/04	0.500	12/04					0.000	0.800	
Subtotal T&E			10.600	12.646		6.404		13.764		13.734				
Remarks:														
Contractor Engineering Su	CPFF	Various	2.497	2.096	01/04	1.931	11/04	1.967	11/05	2.066	11/06		CONT.	
Government Engineering	WR	Various	1.000	1.698	10/03	1.422	10/04	11.193	10/05	11.223	10/06		CONT.	
Travel			0.215	0.067	05/04	0.050	10/04	0.050	10/05	0.050	10/06		CONT.	
Subtotal Management			3.712	3.861		3.403		13.210		13.339				
Remarks:														
Total Cost			560.306	49.155		39.058		100.728		147.742				

R-1 SHOPPING LIST - Item No. 46

Exhibit R-3, Project Cost Analysis

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 10 OF 23)

CLASSIFICATION:

EXHIBIT R4, Schedule Profile

DATE:

February 2005

APPROPRIATION/BUDGET ACTIVITY

RDT&E, N / BA-4

PROGRAM ELEMENT NUMBER AND NAME

PE0603561N Advanced Submarine Systems Development

PROJECT NUMBER AND NAME

Advanced Submarine Systems Development/S2033

PROGRAMS

Payloads and Sensors

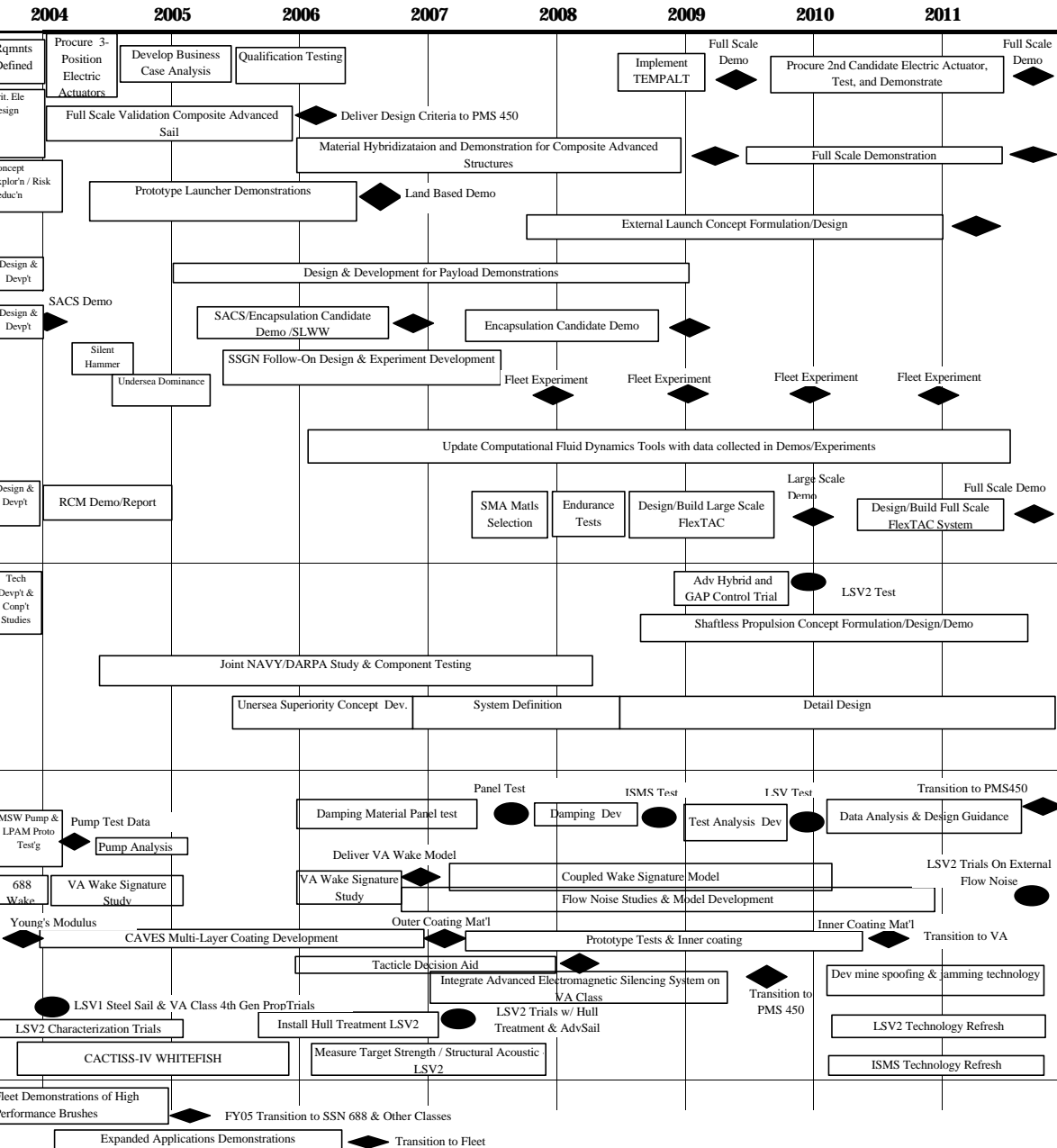
Advanced Propulsion /

Ship Concept Development

Stealth

Total Ownership/Affordability

Legend



◆ Milestone/Major Event ● Trials

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Item No. 44

Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 11 OF 23)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
						February 2005		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&BA-4	PE0603561N Advanced Submarine Systems Development				Advanced Submarine Systems Development/S2033			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Payloads & Sensors								
Select electric actuation system candidates	4Q							
Business Case Analysis		1Q,2Q,3Q,4Q						
Conduct prototype benchmark testing & evaluation			1Q,2Q,3Q,4Q				1Q,2Q,3Q,4Q	
Conduct full scale demonstration						4Q		4Q
Fabricate and demo full scale composite Adv. Sail prototype	3Q,4Q	1Q,2Q,3Q,4Q						
Complete Comp. Adv. Sail development, transition to VA class			3Q					
Comp.Adv. Structures complete design criteria/req. doc./testing			3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q		
Full Scale Demo of Composite Structures			3Q			3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q
Rotary Electromagnetic Launcher Land Based Demo			4Q					
External Launch Concept Formulation/Design					1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q, 2Q
Advanced Payload Demonstrations Design & Development		1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q		
SILENT HAMMER SEA TRIAL		1Q						
UNDERSEA DOMINANCE 04 SEA TRIAL		1Q						
SACS Demonstrations		1Q						
Encapsulation Demonstrations		4Q	4Q			2Q		
Fleet Experiments					2Q	2Q	2Q	2Q
Complete Maneuvering & Control CFD tools	3Q							
Conduct FlexTAC RCM demonstration	4Q							
Complete endurance testing					1Q,2Q,3Q,4Q			
Design/Build large scale FlexTAC						1Q,2Q,3Q,4Q		
Conduct large scale demonstration							3Q	
Advanced Propulsion/Ship Concept Development								
Improved Advanced Hybrid & Gap Control LSV II Trial							1Q, 2Q	
Distributed Pump and Jet Submarine Concept Study	1Q, 2Q, 3Q							
Shatfless Propulsion Concept Forumlation/Design						1Q, 2Q, 3Q, 4Q	Q, 2Q, 3Q, 4Q	1Q, 2Q, 3Q
Joint Navy/DARPA Study & Component Testing	3Q, 4Q	1Q, 2Q, 3Q, 4Q	Q, 2Q, 3Q, 4Q	Q, 2Q, 3Q, 4Q				
Concept Design			1Q,2Q,3Q,4Q					
Preliminary Design				1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q			
Engineering & Specification Development					3Q,4Q	1Q,2Q,3Q,4Q		
Detail Design							1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q

R-1 SHOPPING LIST - Item No. 46

UNCLASSIFIED

Exhibit R-2, RD&BA Budget Item Justification
(Exhibit R-2, page 12 OF 23)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
						February 2005		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RD&BA-4	PE0603561N Advanced Submarine Systems Development				Advanced Submarine Systems Development/2033			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Stealth								
MSW Pump & LPAM Prototype Testing	2Q, 3Q							
Dev & Validate Piping Acoustic Model		2Q, 3Q, 4Q	1Q,2Q,3Q,4Q	1Q				
Mount & Damping Development					1Q,2Q,3Q,4Q	1Q		
Structural Noise/Mount Testing			1Q,2Q,3Q,4Q	1Q, 2Q				
Transition to Advanced Demonstrations Model				3Q				
688 Wake Signature	1Q, 2Q							
VA Wake Signature Study	3Q, 4Q	1Q, 2Q, 3Q						
Deliver VA Wake Signature Model		4Q						
Flow Noise Studies & Model Development			4Q	1Q, 2Q, 3Q, 4Q	1Q, 2Q			
Deliver Young's Modulus	2Q							
CAVES Multi-Layer Development		1Q,2Q,3Q,4Q	1Q, 2Q, 3Q					
New Coating Material			4Q				3Q	
Prototype Tests				1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q		
EM Silencing Evaluate & Integrate Advanced Sys on VA Class			,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	3Q		
SEAWOLF steel sail trail, LSV 1	1Q, 2Q							
LSV evaluation of propulsor component improvements	3Q							
LSV 2 hydrodynamic performance trial	2Q							
LSV 2 maneuvering characterization trial	3Q,4Q	3Q,4Q	3Q					
LSV 2 RAV install hull treatment on pressure hull and sail			2Q, 3Q, 4Q					
Initiate VA advanced sea trials, LSV 2	3Q							
Complete VA advanced sail trials, LSV 2				3Q				
LSV 2 Technology refresh		1Q,2Q					3Q,4Q	1Q, 2Q, 3Q
Technology refresh of Intermediate Scale Meas. System				1Q,2Q			3Q,4Q	1Q, 2Q, 3Q
Total Ownership/Affordability								
Demo commutator operation for Adv. Brush - full scale	1Q							
Comp. Adv. Metal Brushes transition to PMS 392		3Q						

R-1 SHOPPING LIST - Item No. 46

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Exhibit R-2, RD&BA Budget Item Justification
(Exhibit R-2, page 13 OF 23)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603561N/Advanced Submarine System Development				PROJECT NUMBER AND NAME 0223/Submarine Combat System Improv (Adv)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0223/Adv. Submarine Combat Sys. Improv.	25.721	44.474	62.225	60.990	68.304	55.353	57.308	60.777
RDT&E Articles Qty								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program supports innovative research and development in submarine technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently available. Project Unit 0223: The Advanced Submarine Combat Systems Development non-acquisition (Non-ACAT) program supports the Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and combat control systems improvements. This program element transitions technologies developed by Navy technology bases, the private sector, Office of Naval Research (ONR), Future Naval Capabilities and the Defense Advanced Research Projects Agency. The program addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battlespace preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Specifically, the focus of the technology efforts will be Advanced Processing Build-Acoustic (APB-A), Advanced Processing Build-Tactical (APB-T) tactical control and Advanced Hull Arrays. APB's develop and demonstrate improvements to current and future sonar/combat control systems. Program is funded under demonstration and validation because it develops and integrates hardware for experimental test related to specific platform applications.								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603561N/Advanced Submarine System Development	0223/Submarine Combat System Improv (Adv)		
B. Accomplishments/Planned Program				
	FY 2004	FY 2005	FY 2006	FY 2007
Advanced Sonar System Processing/Subtotal Cost	17.221	27.974	36.225	35.090
RDT&E Articles Quantity				
<p>Advanced Processing Build-Acoustic (APB-A) transitioned to PMS401 for fleet introduction in FY 04. FY 05 APB(A) has continued improvements in sonar detection and classification via improved algorithms and automation for towed arrays, is implementing the initial Precision Underwater Mapping functionality, improved sonar planning and environmental monitoring, and initiated processing enhancements for the Hull and Sphere Arrays. Recent efforts were focused on Acoustic Contact Correlation and improved integration with Tactical Control to enhance close aboard situational awareness and a contact avoidance functionality. These enhancements will continue to be refined over the near term in concert with a special focus on expanding HF Active close aboard capabilities. Other Future efforts for FY06 and FY07 will focus on improving the acoustic contribution to ASW in the littorals. Primary improvement candidates are thin-line towed array signal processing, precision tracking and refined automation. Signal processing for the TB-29 Towed Array will be redesigned to improve noise discrimination in shallow water environments and to enhance array shape estimation techniques to improve contact holding through maneuvers. A new integrated precision tracker is being developed as well as additional automation focused on SSK detection and shallow water noise suppression.</p>				
	FY 2004	FY 2005	FY 2006	FY 2007
Advanced Tactical Control/Subtotal Cost	8.500	8.000	12.000	12.000
RDT&E Articles Quantity				
<p>Advanced Processing Build-Tactical (APB-T) transitioned to PMS425 for fleet introduction in FY 04. FY 05 APB(T) delivered the first automated Close Encounter Management tool-set for submarine combatants. Future efforts will focus on enhancing this functionality through refined all source data fusion algorithms and in improving the tactical commander's ability to manage close in and high density scenarios through advanced target motion analysis, contact management, tactical scene rendering, sensor performance prediction models, search planning, uncertainty management, acoustic and non-acoustic vulnerability management, close encounter decision management, and automation. In FY 05 start advanced processing techniques in data fusion and state estimation leveraged from ONR/DARPA. FY06 and FY07 will focus on integrating non-acoustic sensor data such as imaging and radar into tactical contact management algorithms. Automation will be introduced to reduce operator work load through increased surface and subsurface target recognition in tactical scene rendering plots. Automated route planning aides to improve covertness and contact management will be addressed. Efforts will also be applied to improving the advanced development processes that feed Tactical Employment Manuals and Operational Guidance for Fleet use of the combat systems.</p>				
	FY 2004	FY 2005	FY 2006	FY 2007
Advanced Hull Arrays/Subtotal Cost	0.000	8.500	14.000	13.900
RDT&E Articles Quantity				
<p>The Advanced Hull Arrays project is developing improved, larger aperture sonars in order to achieve acoustic superiority over potential threat submarines in the littorals. The end products will be large aperture sail and flank array Advanced Development Models (ADM). In FY05 conduct Low Cost Conformal Array (LCCA) ADM test (first side) on a 688I Class SSN, supporting both contact avoidance and SSK detection. Develop a Conformal Acoustic Velocity Sonar (CAVES) Large Wide Aperture Array (Lg WAA) panel ADM Design and Initiate construction of a Large Hull Segment (Mock Up), to test system performance and validate the installation process (including development and implementation of the required environmental enclosure and holding fixture), in FY06. This program supports CAVES Lg WAA on VIRGINA Class SSNs.</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																													
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603561N Advanced Submarine Systems Development	PROJECT NUMBER AND NAME 0223/Advanced Submarine Systems Development/0603561N																																																														
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Funding:</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">26.877</td> <td style="text-align: right;">43.005</td> <td style="text-align: right;">63.740</td> <td style="text-align: right;">64.307</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">25.721</td> <td style="text-align: right;">44.474</td> <td style="text-align: right;">62.225</td> <td style="text-align: right;">60.990</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-1.156</td> <td style="text-align: right; border-top: 1px solid black;">1.469</td> <td style="text-align: right; border-top: 1px solid black;">-1.515</td> <td style="text-align: right; border-top: 1px solid black;">-3.317</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td style="padding-left: 20px;">FY04 OMNIBUS VIRGINIA CLASS SUBMARINE</td> <td style="text-align: right;">-0.550</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Speciality Optical Fiber with Embedded Sensors</td> <td></td> <td style="text-align: right;">2.000</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Undistributed congressional reductions</td> <td style="text-align: right;">-0.539</td> <td style="text-align: right;">-0.522</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Inflation Adjustment</td> <td></td> <td></td> <td style="text-align: right;">0.420</td> <td style="text-align: right;">0.511</td> </tr> <tr> <td style="padding-left: 20px;">Programmatic adjustments</td> <td></td> <td style="text-align: right;">-0.009</td> <td style="text-align: right;">-1.935</td> <td style="text-align: right;">-3.828</td> </tr> <tr> <td style="padding-left: 20px;">Cancelled Account</td> <td style="text-align: right;">-0.067</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-1.156</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">1.469</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-1.515</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-3.317</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-top: 20px;">Technical:</p>					Funding:	FY 2004	FY 2005	FY 2006	FY 2007	FY05 President's Budget	26.877	43.005	63.740	64.307	FY06 President's Budget	25.721	44.474	62.225	60.990	Total Adjustments	-1.156	1.469	-1.515	-3.317	Summary of Adjustments					FY04 OMNIBUS VIRGINIA CLASS SUBMARINE	-0.550				Speciality Optical Fiber with Embedded Sensors		2.000			Undistributed congressional reductions	-0.539	-0.522			Inflation Adjustment			0.420	0.511	Programmatic adjustments		-0.009	-1.935	-3.828	Cancelled Account	-0.067				Subtotal	-1.156	1.469	-1.515	-3.317
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EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005																										
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603561N/Advanced Submarine System Development			PROJECT NUMBER AND NAME 0223/Submarine Combat System Improv (Adv)																											
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. & Name</th> <th style="text-align: center;">FY 2004</th> <th style="text-align: center;">FY 2005</th> <th style="text-align: center;">FY 2006</th> <th style="text-align: center;">FY 2007</th> <th style="text-align: center;">FY 2008</th> <th style="text-align: center;">FY 2009</th> <th style="text-align: center;">FY 2010</th> <th style="text-align: center;">FY 2011</th> <th style="text-align: center; border-bottom: 1px solid black;">To Complete</th> <th style="text-align: center; border-bottom: 1px solid black;">Total Cost</th> </tr> </thead> <tbody> <tr> <td colspan="11" style="padding-top: 20px;">Not applicable.</td> </tr> </tbody> </table> <p style="margin-top: 40px;">E. ACQUISITION STRATEGY: * Plan to use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.</p> <p style="margin-top: 40px;">F. MAJOR PERFORMERS: **</p> <p style="margin-top: 20px;">Naval Undersea Warfare Center, Newport, R.I. R&D support. Naval Research Laboratory, Washington, DC. Naval Surface Warfare Center, Carderock, MD. R&D Support. John Hopkins University/Applied Physics Lab, Laurel, MD R&D support. Applied Research Lab., The University of Texas, Austin, TX. R&D Support. MITRE Corporation, McLean, VA R&D Support. Lincoln Lab, Cambridge, MA R&D Support. General Dynamic/Advanced Information Systems, Fairfax, VA. R&D Support. Lockheed Martin, Manassas, VA R&D Support. Raytheon, Portsmouth, RI R&D Support. (All performers support APB (A) and APB(T).</p>											Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost	Not applicable.										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost																						
Not applicable.																																

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Exhibit R-3 Cost Analysis (page 1)											DATE:		February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME										
RDT&E, N / BA-4			0603561N/Advanced Submarine System Development			0223/Submarine Combat System Improv (Adv)										
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract		
Product Development	WR	NUWC Newport, RI	68.261	8.775	10/03	12.635	10/04	15.526	10/05	13.148	10/06	CONT.	CONT.			
Product Development	RCP	NUWC Newport, RI	1.000										1.000			
Product Development	WR	NRL/Washington	4.700	0.339	10/03	0.000	10/04	0.656	10/05	0.656	10/06	CONT.	CONT.			
Product Development	RCP	NRL/Washington	0.490										0.490			
Product Development	WR	NSWC Carderock, MD	10.511										CONT.			
Product Development	RCP	NSWC Carderock, MD	0.036										10.511			
Product Development	WR	NSWC Dahlgren	0.178	0.080	10/03	0.080	10/04	0.080	10/05	0.080	10/06	CONT.	CONT.			
Product Development	PD	ONI, Washington	2.785	0.900	12/03	1.007	12/04	1.007	12/05	0.900	12/06	CONT.	CONT.			
Product Development	C/CPFF	Lockheed Martin, VA	19.378	0.198	12/03	1.304	12/04	3.466	12/05	3.304	12/06	CONT.	CONT.			
Product Development	C/CPFF	BAE, NH	3.402										3.402			
Product Development	RCP	NSMA	0.675	0.180	12/03	0.180	11/04	0.180	11/05	0.180	11/06	CONT.	CONT.			
Product Development	MIPR	U.S. Army/MITRE	6.540	1.200	12/03	1.185	12/04	1.800	12/05	1.800	12/06	CONT.	CONT.			
Product Development	MIPR	U.S. Air Force/MIT Lincoln Lab	5.620	1.200	12/03	1.244	12/04	1.744	12/05	1.744	12/06	CONT.	CONT.			
Product Development	RCP	ONR/MCCI	2.800										2.800			
Product Development	MIPR	METRON	1.650	0.515	12/03	1.508	12/04	1.508	12/05	1.508	12/06	CONT.	CONT.			
Product Development	C/CPFF	Progeny, VA	2.090	0.200	12/03	0.237	12/04	0.237	12/05	0.237	12/06	CONT.	CONT.			
Product Development	C/CPFF	BBN, VA	2.836										2.836			
Product Development	RCP	ONR/GTRI	2.050										2.050			
Product Development	SS/CPFF	APL/JHU, MD	30.101	5.350	01/04	7.839	12/04	10.339	12/05	9.839	12/06	CONT.	CONT.			
Product Development	SS/CPFF	APL/UW, WA	0.175	0.050	12/03	0.050	12/04	0.050	12/05	0.050	12/06	CONT.	CONT.			
Product Development	SS/CPFF	ARL/UT, TX	23.937	2.050	12/03	3.601	12/04	4.601	12/05	4.601	12/06	CONT.	CONT.			
Product Development	SS/CPFF	ARL/PSU, PA	1.875	0.000	12/03	0.246	12/04	0.350	12/05	0.350	12/06	CONT.	CONT.			
Product Development	MD	ARL/PSU, PA	0.842	0.208	01/04	0.000	01/05	0.150	01/06	0.150	01/06	CONT.	CONT.			
Product Development	WR	NAVAIR PAX/NSWC Indian H	0.140	0.030	10/03	0.030	10/04	0.030	10/05	0.030	10/06	CONT.	CONT.			
Product Development	WR	SPWAR, CA	0.640	0.073	10/03		10/04	0.140	10/05	0.140	10/06	CONT.	CONT.			
Product Development	PD	SPWAR, CA	0.988	0.048	10/03	0.400	10/04	0.400	10/05	0.400	10/06	CONT.	CONT.			
Product Development	C/CPFF	DSR, VA	17.050	1.154	12/03	4.754	10/04	8.754	10/05	8.448	10/06	CONT.	CONT.			
Product Development	WR	COMSUBLANT	0.295	0.100	10/03	0.178	10/04	0.100	10/05	0.100	10/06	CONT.	CONT.			
Product Development	C/CPFF	Electric Boat, CT	5.603										5.603			
Product Development	CPFF	Lockheed Martin	1.250	1.000	12/03	1.889	12/04	1.590	12/05	1.420	10/06	CONT.	CONT.			
Product Development	MIPR	DARPA, VA	21.600										21.600			
Product Development	Various	Various	2.645										2.645			
Product Development	C/CPFF	Northrop Grumman	1.100										1.100			
SBIrS / BAAs	C/CPFF	Various	6.500	0.000		4.232	Various	7.492	Various	9.830	Various	CONT.	CONT.			
Advanced Towed Array BAA	C/CPFF	Lockheed Martin, NY	1.315										1.315			
Subtotal Product Development			251.058	23.650		42.599		60.200		58.915		CONT.	CONT.			
Remarks:																

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




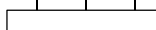
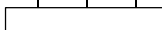



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Exhibit R-3 Cost Analysis (page 3)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603561N/Advanced Submarine System Development			0223/Submarine Combat System Improv (Adv)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NUWC Newport, RI	2.693										2.693	
Developmental Test & Evaluation	C/CPFF	RAYTHEON	4.211										4.211	
Operational Test & Evaluation														
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			6.904	0.000		0.000		0.000		0.000			6.904	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support	C/CPFF	Integrated Product Dec, CT	0.450										0.450	
Program Management Support	C/CPFF	Stanley Associates, VA	4.388	1.000	12/03	1.000	12/04	1.000	12/05	1.000	12/06	CONT.	CONT.	
Program Management Support	C/CPFF	Various	0.444	0.996	12/03	0.800	12/04	0.950	12/05	1.000	12/06	CONT.	CONT.	
Program Management Support	C/CPFF	EG&G	1.787										1.787	
Program Management Support	C/CPFF	Anteon Corporation	0.198										0.198	
Travel			0.275	0.075		0.075		0.075		0.075		CONT.	CONT.	
Transportation														
SBIR Assessment														
Subtotal Management			7.542	2.071		1.875		2.025		2.075		CONT.	CONT.	
Remarks:														
Total Cost			273.504	25.721		44.474		62.225		60.990		CONT.	CONT.	
Remarks:														

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EXHIBIT R4, Schedule Profile																										DATE: February 2005										
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME																PROJECT NUMBER AND NAME										
RDT&E, N / BA-4										PE 0603561N Advanced Submarine Systems Development																0223 Advanced Submarine Combat Systems Development										
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Advanced Processing Build (Acoustic)	APB(A)-03				APB(A)-04				APB(A)-05				APB(A)-06				APB(A)-07				APB(A)-08				APB(A)-09											
																																				
Advanced Processing Build (Tactical)	APB(A)-03				APB(T)-04				APB(T)-05				APB(T)-06				APB(T)-07				APB(T)-08				APB(T)-09											
																																				
TB-16 Multi-Line Towed Array (MLTA)	Noise & shakedown Test				Module & Recvr Intergration																															
																																				
Conformal Acoustic Velocity Sonar / Large Vertical Array																									Transition to VA Class											
					Build and Test				Construct and Instal				Test ADM																							
Low Cost Conformal Array (LCCA)																																				
																																				
					Build and Test								Install 2nd Pass. Array & staves to ADM				Transition to SSNs								Production											

* Not required for Budget Activities 1, 2, 3, and 6

LEGEND:



Sea Test



Transition

Note: For APB 04 only, decision to transition based on laboratory vs Sea Test.

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Exhibit R-4a, Schedule Detail						DATE:			
						February 2005			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E BA-4		PE 0603561N Advanced Submarine Systems Development				0223 Advanced Submarine Combat Systems Development			
Schedule Profile		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Advanced Processing Builds (Acoustic)									
	Transition APB-03 to ARCI	2Q							
	APB(A)-04 Laboratory Test	4Q							
	Transition APB-04 to ARCI		2Q						
	APB(A)-05 Sea Test		4Q						
	Transition APB-05 to ARCI			2Q					
	APB(A)-06 Sea Test			4Q					
	Transition APB-06 to ARCI				2Q				
	APB(A)-07 Sea Test				4Q				
	Transition APB-07 to ARCI					2Q			
	APB(A)-08 Sea Test					4Q			
	Transition APB-08 to ARCI						2Q		
	APB(A)-09 Sea Test						4Q		
	Transition APB-09 to ARCI								
Advanced Processing Builds (Tactical)									
	Transition APB(T)-03 to CCS	2Q							
	APB(T)-04 LabTest	4Q							
	Transition to CCS		2Q						
	APB(T)-05 Sea Test		4Q						
	Transition to CCS			2Q					
	APB(T)-06 Sea Test			4Q					
	Transition to CCS				2Q				
	APB(T)-07 Sea Test				4Q				
	Transition to CCS					2Q			
	APB(T)-08 Sea Test					4Q			
	Transition to CCS						2Q		
	APB(T)-09 Sea Test						4Q		
	Transition to CCS								

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 22 OF 23)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: September 2004			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E BA-4		PE 0603561N Advanced Submarine Systems Development				0223 Advanced Submarine Combat Systems Development			
Schedule Profile		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
TB-16 Multi-Line Towed Array (MLTA)									
	24-channel acoustic module LPO self noise & shakedown test	1Q							
	96-channel acoustic module and receiver intergration	3Q							
	96-channel system test	4Q							
	96-channel system LPO tow test		1Q						
Conformal Acoustic Velocity Sonar/Large Vertical Array									
	Begin detail design, advanced procurement		1Q-4Q						
	Construct and install array			1Q-4Q	1Q-4Q	1Q-4Q			
	Test ADM					1Q-4Q	1Q-4Q		
	Transition to VA Class						1Q-4Q	1Q-4Q	
Low Cost Conformal Array (LCCA)									
	Build and test single ADM array	1Q-4Q	1Q-4Q						
	Install 2nd Passive Array and add active staves to ADM and		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
	Transition to SSNs				1Q-4Q	1Q-4Q	1Q-4Q		
	Production (Note: continues to FY16)							1Q-4Q	1Q-4Q

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE			
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					0603562N/Submarine Tactical Warfare Systems			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	6.939	5.900	7.125	10.369	9.911	10.233	10.487	10.722
0770/Advanced Sub. Spt Equipment Program	4.380	3.275	3.920	4.746	4.191	4.298	4.409	4.520
1739/Sub. Artic Warfare Development	2.559	2.625	3.205	5.623	5.720	5.935	6.078	6.202
Quantity of RDT&E Articles								
Defense Emergency Response Funds (DERF) Funds: NOT APPLICABLE								
A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Tactical Warfare Systems program element is comprised of the Advanced Submarine Support Equipment Program (ASSEP) and the Submarine Special Operations Support Program. The objective is to improve submarine operational effectiveness through the development and implementation of advanced Research and Development (R&D). Areas of improved operational effectiveness for Electronic Warfare Support (ES) and Imaging technologies include Threat Warning/Self Protection; Situational Awareness; and Intelligence, Surveillance, and Reconnaissance. A continuing need exists to improve these capabilities in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. The Submarine Arctic Warfare Development program responds to the increased threat of Naval activity in the Littorals and the continuing threat of submarine and surface ship activity in regions of the world through the development of advanced submarine R&D technology to provide improved operational capability in shallow water regions. Particular emphasis is placed in the areas of sonar operability and maintainability, Littoral operations, mine warfare, tactical surveillance, weapon utility and other submarine support missions. Efforts include assessment of combat system effectiveness, development of Arctic shallow water specific improvements for existing sonars and weapons, development of class specific Arctic operational guidelines and the testing of ice-capable submarine support structures. This program also provides the framework for various R&D programs to conduct Test and Evaluation in shallow water and Arctic regions.								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare System				PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	4.380	3.275	3.920	4.746	4.191	4.298	4.409	4.520
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: A continuing need exists to improve submarine capabilities to improve safety of ship, survivability, and operational effectiveness in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine ES and imaging to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection and Joint Strike. The program is divided into three project categories: Threat Warning/Self Protection, Situational Awareness, and Intelligence, Surveillance and Reconnaissance. The Threat Warning/Self Protection project evaluates the vulnerability of submarine masts, periscopes and sensors to visual, radar, and infrared detection and evaluates the state of the art technology to implement periscope/mast engineering improvements to reduce counter detection threats. Both Situational Awareness and Intelligence, Surveillance, and Reconnaissance projects develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility demonstration models (FDMs) are developed, evaluated, and validated in the lab and through at-sea testing.</p> <p>Threat Warning/Self Protection sub-projects include: Mast Signature Reduction (RCS and EO/IR), Low Probability of Intercept (LPI) Receiver, and ES Frequency Extension.</p> <p>Situational Awareness sub-projects include: Automated Rangefinder (Phase B), Imaging Technologies (virtual periscope), Automatic Identification System (AIS), Situational Awareness Bouy (SAB), Photonics Camera Technology, Communications Acquisition Direction Finding (CADF) multi-function antenna, and Low Band Radar DF.</p> <p>Intelligence, Surveillance and Reconnaissance sub-projects include: Submarine Offboard Sensors (UAV/UUV Pay Load), Advanced EW Tuners, Modular Sensor System (Imaging/SIGINT modules), Imaging Enhancements (fusion), Improved Periscope Interfaces, and R.F. Imaging.</p> <p>The test articles identified consist of critical components that will be fully developed during engineering development into Engineering Development Models (EDM's).</p>								

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)																																															
<div style="display: flex; justify-content: space-between;"><div>B. Accomplishments/Planned Program</div><div>Threat Warning / Self Protection</div></div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"><thead><tr><th></th><th style="text-align: center;">FY 04</th><th style="text-align: center;">FY 05</th><th style="text-align: center;">FY 06</th><th style="text-align: center;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.108</td><td style="text-align: center;">0.055</td><td style="text-align: center;">0.093</td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">FY 04 -07 Plan Mast Signature Reduction - Selection of coating for RCS and EO/IR signature reduction, and development of a research EDM and testing.</div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"><thead><tr><th></th><th style="text-align: center;">FY 04</th><th style="text-align: center;">FY 05</th><th style="text-align: center;">FY 06</th><th style="text-align: center;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.092</td><td></td><td style="text-align: center;">0.116</td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">FY 04 -07 Plan Low Probability of Intercept (LPI) - Development of receiver, testing, and integration of Ultra Wide Chirp capability.</div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"><thead><tr><th></th><th style="text-align: center;">FY 04</th><th style="text-align: center;">FY 05</th><th style="text-align: center;">FY 06</th><th style="text-align: center;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td style="text-align: center;">0.213</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px;">FY 04 -07 Plan Frequency Extension - Develop feasibility studies and translate the requirements into a performance specification.</div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.108	0.055	0.093		RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.092		0.116		RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost				0.213	RDT&E Articles Quantity				
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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)		

B. Accomplishments/Planned Program (Cont.) Situational Awareness Enhancements

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.338	1.575	1.443	0.861
RDT&E Articles Quantity				

FY 04 -07 Plan
Complete: Patriot Rangefinder - Complete testing of Phase A, develop and test sub-components and conceptual EDM for Phase B (Stealthy / Data Link), and develop prototype unit for use with photonics mast.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.458	0.122		
RDT&E Articles Quantity				

FY 04 -05 Plan
Complete: Automatic Identification System (AIS) - Complete the development of a conceptual EDM and prepare for and conduct At-Sea testing program.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost		0.445	1.005	0.615
RDT&E Articles Quantity				

FY 06 -07 Plan
Complete: Advanced Photonics Camera Technology - Conduct conceptual studies and feasibility studies, determine operational requirements and develop an appropriate performance specification.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost				0.405
RDT&E Articles Quantity				

FY 07 Plan
Complete :Enhanced Displays - Develop studies determining the potential improvements needed to enhance the effectiveness of displays associated with the AN/BLQ-10 system and prepare a design concept for future development.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 4 of 21)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)		

B. Accomplishments/Planned Program (Cont.)	Situational Awareness Enhancements (Cont.)			
---	--	--	--	--

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.213	0.189		
RDT&E Articles Quantity				

FY 04 - FY 06 Plan
 Complete: Virtual Periscope - Continue development of system algorithms and prototype. Prepare for, conduct and analyze the results of At-Sea testing.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.127		0.232	
RDT&E Articles Quantity				

FY 04 - FY 06 Plan
 Complete: CADF Multi-Function Antenna Technology- Develop a conceptual EDM and conduct testing.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

FY 06 Plan
 Complete: Low Band Radar Direction Finding - Develop feasibility studies.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.307	0.247	0.742	0.116
RDT&E Articles Quantity				

FY 04 - FY 07 Plan
 Complete: Situational Awareness Buoy (SAB) - Develop conceptual design, develop a prototype and conduct At-Sea testing.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)																																															
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R-1 SHOPPING LIST - Item No. 47

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 6 of 21)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems	PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)																																															
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<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: right;">FY 2004</th> <th style="width: 10%; text-align: right;">FY 2005</th> <th style="width: 10%; text-align: right;">FY 2006</th> <th style="width: 10%; text-align: right;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">4.381</td> <td style="text-align: right;">3.307</td> <td style="text-align: right;">3.376</td> <td style="text-align: right;">4.054</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">4.380</td> <td style="text-align: right;">3.275</td> <td style="text-align: right;">3.920</td> <td style="text-align: right;">4.746</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.001</td> <td style="text-align: right; border-top: 1px solid black;">-0.032</td> <td style="text-align: right; border-top: 1px solid black;">0.544</td> <td style="text-align: right; border-top: 1px solid black;">0.692</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Programmatic adjustments</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">-0.001</td> <td style="text-align: right;">0.531</td> <td style="text-align: right;">0.657</td> </tr> <tr> <td> Undistributed congressional reductions</td> <td style="text-align: right;">-0.001</td> <td style="text-align: right;">-0.031</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td> Inflation adjustment</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.013</td> <td style="text-align: right;">0.035</td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-0.001</td> <td style="text-align: right; border-top: 1px solid black;">-0.032</td> <td style="text-align: right; border-top: 1px solid black;">0.544</td> <td style="text-align: right; border-top: 1px solid black;">0.692</td> </tr> </tbody> </table> <p>Schedule:</p> <p>Concept testing and development of PATRIOT for Photonics Mast.</p> <p>Technical:</p> <p>Concept testing and development of PATRIOT for Photonics Mast.</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					FY05 President's Budget	4.381	3.307	3.376	4.054	FY06 President's Budget	4.380	3.275	3.920	4.746	Total Adjustments	-0.001	-0.032	0.544	0.692	Summary of Adjustments					Programmatic adjustments	0.000	-0.001	0.531	0.657	Undistributed congressional reductions	-0.001	-0.031	0.000	0.000	Inflation adjustment	0.000	0.000	0.013	0.035	Subtotal	-0.001	-0.032	0.544	0.692
	FY 2004	FY 2005	FY 2006	FY 2007																																																		
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Inflation adjustment	0.000	0.000	0.013	0.035																																																		
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R-1 SHOPPING LIST - Item No. 47

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603562N/Submarine Tactical Warfare Systems			PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equipment Program (ASSEP)			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
(U) Other Program Funding Summary: Not applicable. (U) Related RDT&E: (U) PE 0604503N(Submarine System Equipment Program) (U) PE 0604558N(New Design SSN Development) (U) PE 0604777N(Navigation /ID Systems)										

E. ACQUISITION STRATEGY: *

This project optimizes technology insertion using a build-test-build approach to support ES and imaging operational needs. Operational needs have been based on the tactical requirements identified in CNO letters, Serial N77/3U629212, dated 04 Sep 03, Serial N77/3U629205, dated 01 Apr 03, and Serial N77/1U651534, dated 30 Oct 01, COMSUBLANT/COMSUBPAC Command Capability Issues (CCIs), Virginia Class SSN Operational Requirements Document objectives, a review, assessment and prioritization of Sensor and Processor efforts and SSN force level projections for SSN688/688I, SSN21, and SSN 774 classes through FY2015. Project efforts develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility Demonstration Models (FDMs) will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.

F. MAJOR PERFORMERS: **

NAWC, China Lake, CA
 NUWC, Newport, RI
 Applied EM
 Lockheed Martin

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603562N/Submarine Tactical Warfare Systems				0770/Advanced Submarine Support Equipment Program (ASSEP)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	SS/CPIF	NRL/LM/EDO/ARETE/AEM/JHU/TSC/JPL	0.000	0.711	10/03	0.833	10/04	1.166	10/05	2.081	10/06	TBD	TBD	TBD	
Ancillary Hardware Development													0.000		
Component Development													0.000		
Ship Integration													0.000		
Ship Suitability													0.000		
Systems Engineering	WR	NUWC Newport, RI		0.828	10/03	0.484	10/04	0.969	10/05	1.276	10/06	CONT	CONT	N/A	
	WR/RC	NAWC China Lake		2.486	10/03	1.705	10/04	1.244	10/05	0.744	10/06	CONT	CONT	N/A	
Licenses													0.000		
GFE	N/A	N/A											0.000		
Miscellaneous	Various	Various										CONT	CONT	N/A	
Award Fees													0.000		
Subtotal Product Development			0.000	4.025		3.022		3.379		4.101		CONT	CONT		
Remarks:															
Development Support													0.000		
Software Development													0.000		
Training Development													0.000		
Integrated Logistics Support													0.000		
Configuration Management													0.000		
Engineering Technical Services	C/CPFF	AT&T GSI, Vienna,VA		0.200	11/03	0.200	11/04	0.200	11/05	0.242	11/06	CONT	CONT	N/A	
GFE													0.000		
Award Fees													0.000		
Subtotal Support			0.000	0.200		0.200		0.200		0.242		CONT	CONT		
Remarks:															

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603562N/Submarine Tactical Warfare Systems			0770/Advanced Submarine Support Equipment Program (ASSEP)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Management Support Services	C/CPFF	Various										CONT	CONT	N/A
Travel	TOs	Various		0.020		0.020		0.020		0.025		0.000	0.060	
Labor (Research Personnel)													0.000	
SBIR Assessment				0.135		0.033		0.321		0.378		CONT	CONT	
Subtotal Management			0.000	0.155		0.053		0.341		0.403		0.000	CONT	
Remarks:														
Total Cost			0.000	4.380		3.275		3.920		4.746		CONT	CONT	
Remarks:														

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDTE, N/BA-4	PROGRAM ELEMENT NAME AND NUMBER 0603562N/Submarine Tactical Warfare System	PROJECT NAME AND NUMBER 0770/Advanced Submarine Support Equipment Program (ASSEP)	

ASSEP F0770 SCHEDULE	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Threat Warning Self Protection										
Mast Signature Reduction		Coating Selection		EDM	Tetsing					
Low Probability of Intercept (LPI) Receiver		Testing/Integration		Ultra Wide Chirp	Testing					
ES Frequency Extension					Concept		Performance Spec		EDM	Tetsin
Situational Awareness Enhancements										
Patriot Phase B (Stealth and Data Link)	Concept		Performance Spec	EDM	Testing					
Automatic Identification System (AIS)	Concept	Performance Spec	EDM	At Sea Testing						
Advanced Camera Technology				Concept	Performance Spec		EDM		Testing	
Enhanced Displays					Concept	Performance Spec		EDM	Testing	
Virtual Periscope	Performance Spec		TEMPALT	At Sea Testing	EDM					
CADF - Antenna Technology	Concept		EDM	Testing	Integration					
Low Band Radar					Feasibility Study					
Situational Awareness Buoy (Expendable)			Conceptual Design	Performance Spec	Prototype	Testing				
ISR Enhancements										
Passive Surveillance Radar (PSR) / Electromagnetic Vulnerability Server (EVS)	Conceptual Design		Upgrades to design	Testing						
Imaging Enhancements (Super Resolution, Fusion) and RF Imaging						Conceptual Design	Performance Spec		EDM	Testing
Offboard Sensors (UAV/UUV Payloads)					Performance Spec			EDM	Testing	
Advanced EW Tuners						Performance Spec	EDM	Testing		
Modular Sensors (Package EVS/PSR/AIS)				Concept Study						
Digital Loss Antenna Interface						Performance		Prototype		

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Exhibit R-4, RDT&E Project Justification

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 12 of 21)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04		PROGRAM ELEMENT 0603562N/Submarine Tactical Warfare Systems				PROJECT NUMBER AND NAME 0770/Advanced Submarine Support Equip Prog (ASSEP)		
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Threat Warning / Self Protection								
Mast Signature Reduction - Coating Selection	Q1							
EDM Coated Mast			Q4					
LPI Ultra Wide Chirp Design		Q4						
Frequency Extension Performance Spec					Q1			
Frequency Extension EDM							Q4	
Situational Awareness Enhancements								
Patriot Phase B Sub-component Fabrication	Q4							
Patriot Phase B EDM		Q4						
Automatic ID System EDM	Q4							
Automatic ID System At-sea Testing		Q3						
Advanced Camera Technology Performance Spec			Q4					
Advanced Camera Technology EDM					Q4			
Enhanced Displays Performance Spec					Q2			
Enhanced Displays EDM							Q1	
Virtual Periscope Prep for At-sea Testing	Q4							
Virtual Periscope At-sea Testing		Q3						
CADF Multi-function EDM		Q3						
CADF Multi-function Testing			Q3					
Low band DF Feasibility Study			Q3					
Situational Awareness Bouy Conceptual Design	Q3							
Situational Awareness Bouy Prototype			Q3					
Situational Awareness Bouy Testing				Q3				
Intelligence, Surveillance, Reconnaissance Enhancements								
PSR/EVS Add Upgrades to Concept Design	Q3							
PSR/EVS At Sea Testing		Q4						
RF Imaging/ Imaging Enhancements Conceptual Design				Q3				
RF Imaging/ Imaging Enhancements Performance Spec					Q3			
RF Imaging/ Imaging Enhancements EDM							Q3	
Offboard Sensors Performance Spec			Q4					
Offboard Sensors EDM						Q1		
Advanced EW Tuners Performance Spec				Q4				
Advanced EW Tuners EDM					Q3			
Modular Sensors Concept Study		Q3						
Digital Loss Antenna Interface Performance Spec				Q4				
Digital Loss Antenna Interface Prototype						Q1		
Digital Loss Antenna Testing							Q4	

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Exhibit R-2, RTEN Budget Item Justification
(Exhibit R-2, page 13 of 21)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME			
RDT&E, N / BA-4	PE 0603562N Submarine Tactical Warfare System				1739 Submarine Special Operations Support			
COST (\$ in Millions)	FY 04	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.559	2.625	3.205	5.623	5.720	5.935	6.078	6.202
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Artic project responds to the increased threat of Naval activity in the Littoral and continuing threat of submarine and surface ship activity in all regions of the world through the development of advanced submarine concepts. It places particular emphasis on submarine operability and mission support in unique environments. Efforts include assessment of combat system effectiveness, weapons testing, use of high frequency sonars in Arctic regions, testing of ice-capable submarine structures, and development of class specific Arctic shallow water operational guidelines. This program also provides the framework for various Research and Development (R&D) programs to conduct Test and Evaluation in the shallow water and Arctic regions.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME PE 0603562N Submarine Tactical Warfare System	PROJECT NUMBER AND NAME 1739 Submarine Special Operations Support																
B. Accomplishments/Planned Program																		
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">2.559</td><td style="text-align: center;">2.625</td><td style="text-align: center;">3.205</td><td style="text-align: center;">5.623</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>					FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.559	2.625	3.205	5.623	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07														
Accomplishments/Effort/Subtotal Cost	2.559	2.625	3.205	5.623														
RDT&E Articles Quantity																		
<div style="border: 1px solid black; padding: 5px;"><p>Conduct ICEX mission, arctic transit mission, ICEX workup, ICEX training, and Ice Camp. Provide planning, logistics, support for Ice Camp Operations. FY06 Plans: Support Arctic deployments, including inter-fleet transfers, as required by the Submarine Force Commanders. Investigate, research, develop and deploy new systems for Arctic submarine support. Support testing and tactical development required to improve submarine Arctic operability and warfighting. Plan a large ice camp in the Arctic Ocean during Spring 2007 to conduct submarine technical testing and tactical development, and to collect Arctic environmental data. FY07 Plans: Support Arctic deployments, including inter-fleet transfers, as required by the Submarine Force Commanders. Investigate, research, develop and deploy new systems for Arctic submarine support. Support testing and tactical development required to improve submarine Arctic operability and warfighting. Coordinate and provide technical and logistic support for the Spring 2007 Ice Camp in the Arctic Ocean.</p></div>																		
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	FY 04	FY 05	FY 06	FY 07														
Accomplishments/Effort/Subtotal Cost																		
RDT&E Articles Quantity																		
<div style="border: 1px solid black; height: 60px;"></div>																		
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Accomplishments/Effort/Subtotal Cost																		
RDT&E Articles Quantity																		
<div style="border: 1px solid black; height: 60px;"></div>																		

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EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA4	PE 063562N Submarine Tactical Warfare Sys	1739 Submarine Special Operations Support		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY05 President's Budget	2.567	2.650	3.274	5.835
FY06 President's Budget	2.559	2.625	3.205	5.623
Totals Adjustments	-0.008	-0.025	-0.069	-0.212
Summary of Adjustments				
Undistributed congressional reductions	-0.002	-0.024		
Programmatic adjustments		-0.001	-0.069	-0.212
Cancelled Account	-0.006			
Subtotal	-0.008	-0.025	-0.069	-0.212
Schedule:				
N/A				
Technical:				
N/A				

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME PE 063562N Submarine Tactical Warfare System	PROJECT NUMBER AND NAME 1739 Submarine Special Operations Support
<p>D. OTHER PROGRAM FUNDING SUMMARY: N/A</p> <p>E. ACQUISITION STRATEGY: * NON-ACAT Progam</p> <p>F. MAJOR PERFORMERS: ** Command Submarine ForceUS PacificFleet (COMSUBPAC) - Develop and definitize an Arctic-Deploying side Scan Sonar replacement plan, which will deliver a significant improved qualitative view of the underside of the ICE Canopy Sighting and tracking surfaceable features of current submarines, and the future VA Class submarine.</p>		

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA4			PROGRAM ELEMENT PE 063562N Submarine Tactical Warfare System			PROJECT NUMBER AND NAME 1739 Submarine Special Operations Support								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development													0.000	
Ancillary Hardware Development													0.000	
Systems Engineering	WR	NSWC Carderock	0.400										0.400	
Systems Engineering		EB Corp	0.025										0.025	
Systems Engineering	WR	NSWC INDIAN HEAD	0.051										0.051	
Systems Engineering	WR	SPAWAR	0.120										0.120	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Subtotal Product Development			0.596	0.000		0.000		0.000		0.000		0.000	0.596	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA			PROGRAM ELEMENT PE 063562N Submarine Tactical Warfare System			PROJECT NUMBER AND NAME 1739 Submarine Special Operations Support								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SUBDEVRON Five	7.835	2.447	11/03	2.462	11/04	3.042	11/05	5.460	11/06	CONT.	CONT.	
Developmental Test & Evaluation	WR		0.015										0.015	
Developmental Test & Evaluation	WR	CMDR,3rd NAVCON BRIGA	0.200										0.200	
Developmental Test & Evaluation	WR	CMDR,2nd NAVCON BRIGA	0.250										0.250	
Developmental Test & Evaluation	SS/CPFF	APL/University of Washington	3.294										3.294	
Tooling													0.000	
GFE													0.000	
Subtotal T&E			11.594	2.447		2.462		3.042		5.460		0.000	19.545	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support		EG&G	0.379	0.102	11/03	0.153	11/04	0.153	11/05	0.153	11/06	CONT.	CONT.	
Travel			0.040	0.010	11/03	0.010	11/04	0.010	11/05	0.010	11/06	CONT.	CONT.	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.419	0.112		0.163		0.163		0.163		0.000	0.857	
Remarks:														
Total Cost			12.609	2.559		2.625		3.205		5.623		0.000	20.998	
Remarks:														

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:		February 2005							
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA4										PE 063562N Submarine Tactical Warfare System												1739 Submarine Special Operations Support											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
Arctic Ice Exercise																																	
ICEX Mission (at Sea) A Submarine arctic operation is to improve the Navy's understanding of the Arctic.		△△	△△											△△	△△						△△	△△											
Arctic Transit Mission An operation in support of the Navy's need to "surge" a submarine from the Atlantic to the Pacific (or vice versa) via the Arctic.			△△	△△		△△	△△			△△	△△			△△	△△			△△	△△		△△	△△											
ICEX Workup A short underway period conducted in the submarine's local operating areas prior to embarking on an Arctic mission.	△△	△△		△				△				△		△		△			△△	△△													
ICEX Training Provides classroom training to the ship's watchstanders by the Ice pilot(s) to practice under-ice shiphandling.		△	△	△				△			△△	△△		△				△△	△△														
ICE Camp (Arctic Ocean) A remote field station set up in the Arctic to conduct scientific and tactical testing.						△								△△	△△					△△	△△												
SCICEX Accommodation Support scientific understanding of the Arctic Ocean.	△						△				△			△△	△△					△△	△△												

R-1 SHOPPING LIST - Item No. 47

* Not required for Budget Activities 1, 2, 3, and 6

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CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 47

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 21 of 21)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4					R-1 ITEM NOMENCLATURE 0603563N/Ship Concept Advanced Design			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	19.006	16.166	11.899	22.215	31.584	31.590	31.624	31.603
2196/Design Tools, Plans & Concepts	6.049	3.687	11.899	22.215	31.584	31.590	31.624	31.603
9041/Small Combatant Craft	8.707	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9042/Sealion Tech Demo	0.967	8.319	0.000	0.000	0.000	0.000	0.000	0.000
9044/Document Automation of ICAS & Other Navy	1.645	2.476	0.000	0.000	0.000	0.000	0.000	0.000
9193/Total Fleet Support	1.638	1.684	0.000	0.000	0.000	0.000	0.000	0.000
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>Explore alternative surface ship force structures, advanced surface ship & unmanned surface vehicles concepts, and the potential technologies for these force structures and advanced concepts in support of pre-acquisition mission needs analysis, mission area analysis, SCN and R&D planning. The objective is a more affordable, mission capable surface ship force including ships with reduced manning, increased producibility, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan with state-of-the-art design tools and methods for surface ship force structure alternative studies, ship & unmanned vehicle concept studies, and the actual conduct of surface ship force structure alternative studies and advanced design concept studies for the ships that may become part of the SCN plan.</p> <p>(U) Project 2196 - This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.</p> <p><u>Congressional Adds:</u></p> <p>(U) Project 9041: This project funds only acquisition, test and evaluation of a high speed variable freeboard planning craft and related special warfare high speed support craft and equipment.</p> <p>(U) Project 9042: This project funds Situation Awareness Module, related to the Sealion Craft (project S9041).</p> <p>(U) Project 9044: This project funds Documentation Automation of Integrated Condition Assessment System (ICAS) Maintenance and other Navy procedures in XML format.</p> <p>(U) Project 9193: This project funds development and analysis of fleet support technologies.</p>								

R-1 SHOPPING LIST - Item No. 48

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 14)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design				PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	6.049	3.687	11.899	22.215	31.584	31.590	31.624	31.603
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: A. (U) Mission Description and Budget Item Justification: This project develops and explores alternative surface ship force structures, the advanced surface ship & unmanned surface vehicles concepts, and the potential technologies for these force structures and the advanced concepts in support pre-acquisition mission needs analysis, mission area analysis, SCN and R&D planning. The objective is a more affordable, mission capable surface ship force including ships with reduced manning, increased producibility, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan with state-of-the-art design tools and methods for surface ship force structure alternative studies, ship & unmanned vehicle concept studies, and the actual conduct of surface ship force structure alternative studies and advanced design concept studies for the ships that may become part of the SCN plan.

(U) This project provides the foundation for an affordable and mission capable surface ship force. It also supports the next step in the development of a transformed naval force by accomplishing the pre-milestone A (especially pre-concept decision) efforts for all potential surface ships and craft. These efforts are the required first step in the integration of total ship systems, including combat systems and hull, mechanical and electrical (HM&E) systems. Inadequate early planning and ship concept formulation can result in down-stream design, construction and operational problems. A more subtle and severely negative impact of neglecting this early effort is that the "best" concepts and technologies may never even be considered and our greatest potential ship design advances never realized. Designs and technologies must meet the threat. This project supports this requirement.

(U) This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.

(U) This project accomplishes the following: (1) Develops alternative surface ship force structure concepts including the ships and unmanned vehicles; (2) Evaluates the mission capability effectiveness and costs for these alternative surface fleet architectures; (3) Performs fleet warfighting / mission effectiveness assessment studies; (4) Identifies future surface ship requirements and characteristics necessary to meet future threats and support mission needs; (5) Investigates new affordable ship concepts and evaluates technologies necessary to support these concepts; (6) Provides design methods and automated design tools to develop and evaluate ship concepts; and (7) Supports development of Initial Capabilities Documents (ICD) and analogous early requirements documents for future ships. These efforts are done to support mission analysis, mission needs development and technology assessment in support of future fleet concepts and potential ship acquisition programs. These efforts are foundational to the Navy's formulation of the future fleet.

(U) Efforts under Project 2196 transition directly to early stage ship design in PE 0603564N, Ship Preliminary Design and Feasibility Studies and similar Program Executive Office (PEO) ship design programs. While these efforts support concept exploration and mission needs assessment for potential future ship acquisition programs, they are not direct efforts for specific, authorized shipbuilding programs. This project is the only R&D effort (Government or commercial) that supports and maintains this country's naval ship design and engineering capabilities in the area of very early stage (Concept Design) design tools, criteria, and methods.

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 2 of 14)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design	PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.820	1.000	0.700	0.750															
RDT&E Articles Quantity																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.734	0.542	0.250	0.450															
RDT&E Articles Quantity																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.965	0.945	0.699	0.720															
RDT&E Articles Quantity																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design	PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts																	
B. Accomplishments/Planned Program (Cont.)																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.230	0.100	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>(U) Future Force Formulation (Core): Continue development of methodology for force architecture alternatives and analyses. Conduct analyses of force architecture concepts that can illuminate the high level interfaces between surface ship warfare communities and other force elements such as aviation and submarines. Examine the distribution of functions between various existing and postulated ship classes, the interface between diverse force elements such as platform configuration and mission, network connectivity, force level logistics and concept of operations, with a particular focus on total force level cost, performance and risk.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.500</td> <td style="text-align: center;">1.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.500	1.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.500	1.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>(U) Future Force Formulation (Demo): Conduct first Future Force Formulation case study, selecting a limited case of force architecture for practical execution and feedback into the process development. Selection of a family of ships within a community will be made and the developing methodology of Future Force Formulation exercised in a one year study with deliverables and for presentation before decision authority for a pre-MS A project.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.800</td> <td style="text-align: center;">0.100</td> <td style="text-align: center;">0.250</td> <td style="text-align: center;">0.295</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.800	0.100	0.250	0.295	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.800	0.100	0.250	0.295															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>(U) Mission Systems Interface Development and Demonstration: This task funds requirement development for ship and technologies to counter threats such as asymmetric, peer and littoral enemies. The transformation of the surface fleet starts with highly capable, multi-mission destroyers, advanced cruisers and a new breed of reconfigurable and/or focused mission ships designed to defeat enemy littoral defenses including mines, small boats, and submarines, ultimately ensuring maritime access in any environment. This effort focuses on requirements for ships with tailored, modularized mission systems packages designed to accommodate a variety of naval missions. It includes liaison with DARPA and SBIR experimentation.</p> </div>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design	PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts		

B. Accomplishments/Planned Program (Cont.)

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.720	1.640
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

(U) Future Ship and Force Concept Design:
Center for Innovation in Ship Design - Revitalize design, engineering education and research to ensure engineering capability to develop and design innovative, affordable, mission capable naval ships which utilize the latest technologies.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.470	0.810
RDT&E Articles Quantity				

(U) Future Submarine and Submersible Concept Design:
Hydrodynamic/Hydroacoustic Technical Center - Provides Government activities, shipbuilders, academia and contractors the following: high performance computing systems; commercial and research software libraries; classified and unclassified connectivity; high end data visualization; and collaboration tools/Centralized data repository.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.210	2.460
RDT&E Articles Quantity				

(U) Future Ship and Force Concept Design:
High Speed Ships and Craft - Technology, Design Criteria and Process Development - Engineering development for transformational capabilities to include design processes, tools design standards and criteria for high speed ships and craft.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design	PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts		

B. Accomplishments/Planned Program (Cont.)

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.480	1.230
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

(U) Future Ship and Force Concept Design:
Next Generation USV - Development, demonstration and deployment of Unmanned Surface Vehicle (USVs) and possible air droppable USVs. Achievement of full war fighting utility and full mission package capability will require innovations in vehicle design, sensors, autonomous behavior and modular payloads. Focus on utility in surface warfare especially new ship classes with improved deployable vehicle capabilities such as DD(X), LCS and CG(X).

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.820	1.840
RDT&E Articles Quantity				

(U) Ship Design and Certification Tools:
Ship Certification Tools - Evaluation tools to certify the safety and mission capability of Navy ships. Top-Level metrics & monitoring of certification capability. Technical coordination of tool development efforts sponsored with focus on surface warfare and submarine warfare needs.

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.790	1.370
RDT&E Articles Quantity				

(U) Future Ship and Force Concept Design:
Ship Concept Advanced Development - Directly supports the Navy's ability to understand and quantify mission requirements impacts on surface warfare assets; Pre-Milestone A ship and craft design and analysis to determine ROM cost and feasibility of new technologies being incorporated into ship designs; performs risk mitigation engineering for ongoing acquisition programs such as LCS (especially future flights) and CGX.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design	PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts																	
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.540	1.800															
RDT&E Articles Quantity	N/A	N/A	N/A	N/A															
<div style="border: 1px solid black; padding: 5px;"> <p>(U) Ship Design and Certification Tools: Engineering and Technical Data Exchange (Formally: Ship Development Systems Interoperability) - Develop and implement a framework of standardized interfaces for ship development and engineering systems: built upon ISO 10303 STEP content standards and XML format specifications, CAD to CAD and CAD to CAE/Vis/Sim interfaces; align with Technical Authority Warrants; and eliminate need for custom interface to each program's IDE for design review and certification (recurring NRE). Focus on surface warfare, expeditionary warfare and submarine warfare issues initially.</p> </div>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.690	3.280															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>(U) Future Submarine and Submersible Concept Design: Submarine Design - Transform the submarine fleet with dramatic increases in mission effectiveness. Innovate the 'Navy after Next' concepts. Develop knowledge to invest smartly in technology. Develop ship concept studies and evaluate technologies to define the Next Generation Submarine. Common SSN-SSBN Hull and Payload Modularity.</p> </div>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.690	2.870															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>(U) Interoperability Engineering: Imbedded Interoperability Engineering - Interoperability engineering tests must occur prior to certification to prevent critical failures in systems deliveries. Evaluate Open Architecture and the Single Integrated Air Picture Track Manager. Certify Strike Force Interoperability.</p> </div>																			

R-1 SHOPPING LIST - Item No. 48

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design	PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts																	
B. Accomplishments/Planned Program (Cont.)																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.590</td><td style="text-align: center;">2.700</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.590	2.700	RDT&E Articles Quantity	N/A	N/A	N/A	N/A
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.590	2.700															
RDT&E Articles Quantity	N/A	N/A	N/A	N/A															
<div style="border: 1px solid black; padding: 5px; min-height: 60px;"><p>(U) Interoperability Engineering: Mission Capability Systems Engineering - Development of force level systems engineering requirements. The application of system level requirements necessary to support spiral developments that build to a "system of systems" capability.</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			
<div style="border: 1px solid black; height: 70px;"></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			
<div style="border: 1px solid black; height: 80px;"></div>																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design	PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
FY 2005 President's Budget:	7.594	3.723	1.721	21.646
FY 2006/2007 President's Budget:	19.006	16.166	11.899	22.215
Total Adjustments	11.412	12.443	10.178	0.569
Summary of Adjustments				
SBIR	-0.357			
Execution Realignment	-1.451			
Congressional Adds	13.400	12.600		
Programmatic Adjustment: NAVSEA Technical Authority			10.000	
Miscellaneous Adjustments	-0.180	-0.157	0.178	0.569
Subtotal	11.412	12.443	10.178	0.569

Schedule: Ten new efforts (grouped in 4 specialty areas) were added to this project. The planned schedule is as follows:

Future Ship and Force Concept Design (4 new projects) will commence in FY06 with:

- Ship Concept Advanced Design adds robust early examination of LCS future flight and CG(X) concepts in support of AOA preparations.
- Next Generation USV commences an advanced development project building upon Advanced Maritime Navigation, Airdropable SBIR and other efforts, leading to future year prototyping. FY06 efforts include market survey, data collection, tool development and planning of a multiyear effort.
- High Speed Ships and Craft - Technology, Design Criteria and Process Development will commence in FY06, utilizing results of CISD FY06 efforts and being jointly managed by the CISD program manager serving as High Speed Ships & Craft APM within S&FAC/SCAD.

Two new efforts each for ship certification tools, for submarine concept, for interoperability engineering that will all commence in FY06.

Technical: Hydro Tech Center, though led by submarine community, will also address surface hydro/acoustic issues. Tools, though led by surface community, will also address submarine tools issues.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603563N/Ship Concept Advanced Design			PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts				

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) Related RDT&E										
(U) PE 0603512N (Carrier Systems Development)	7.742	7.874	10.434	9.908	7.930	7.629	7.149	4.122		
(U) PE 0603513N (Shipboard Systems Component Development)	3.613	1.899	2.182	1.647	1.924	1.949	1.970	1.987		
(U) PE 0603564N (Ship Preliminary Design and Feasibility Studies)	0.000	0.000	10.874	13.419	7.406	1.600	0.729	1.022		
(U) PE 0604300N (SC21 Total Ship Systems Engineering)	155.984	206.800	204.937	140.698	79.660	47.152	46.598	55.927		
(U) PE 0604567N (Ship Contract Design/Live Fire T&E)	11.306	13.091	5.525	8.580	8.249	5.811	3.975	8.521		

E. ACQUISITION STRATEGY:

This is a non acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments.

F. MAJOR PERFORMERS:

Field Activities & Locations - Work Performed:

- NSWC Carderock, Bethesda, MD - Future ship open architectures, advanced ship concepts, ship & ship system technology assessments, design & engineering tool upgrades
- NSWC Dahlgren, Dahlgren, VA - Future force architectures, mission effectiveness analyses, analytical tool development
- SPAWAR, San Diego, CA - C4ISR systems concept development & integration

Contractors & Locations - Work Performed

- TBD - Systems engineering analyses, trade studies, ship concept design, cost impact analysis
- TBD - Software, tools development

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N /BA-4			0603563N/Ship Concept Advanced Design			2196/Design Tools, Plans, and Concepts								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY's Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development													0.000	
Systems Engineering	various	Other Various Contractors	56.032	1.414	various	1.171	various	2.778	various	4.600	various	Continuing	Continuing	
Engineering Development	WX & RX	NAVSEA, Dahlgren Div,		2.905	various	0.901	various	4.400	various	8.649	various	Continuing	Continuing	
		Dahlgren, VA												
Demonstration & Evaluation	WX & RX	NAVSEA, Carderock Div,	32.296	1.550	various	0.983	various	4.551	various	8.796	various	Continuing	Continuing	
		West Bethesda, MD												
	WX & RX	SPAWAR						0.150	various	0.150	various	Continuing	Continuing	
Licenses													0.000	
Tooling	WX\RXPD	SPAWAR	9.629	0.150	various	0.612	various					0.000	10.391	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			97.957	6.019		3.667		11.879		22.195		0.000	141.717	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 11 of 14)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RD&E, N /BA-4			PROGRAM ELEMENT 0603563N/Ship Concept Advanced Design			PROJECT NUMBER AND NAME 2196/Design Tools, Plans, and Concepts								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support													0.000	
Travel				0.030		0.020		0.020		0.020		Continuing	Continuing	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.000	0.030		0.020		0.020		0.020		0.000	0.090	
Remarks:														
Total Cost			97.957	6.049		3.687		11.899		22.215		0.000	141.807	
Remarks:														

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																						DATE:				February 2005							
APPROPRIATION/BUDGET ACTIVITY									PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												
RDT&E, N /BA-4									0603563N/Ship Concept Advanced Design												2196/Design Tools, Plans, and Concepts												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Engineering Milestones																																	
Pre-MS A Ship Concept Studies																																	
Ship Synthesis Modeling Tool																																	
Extension to Small & Alt Hull Modular Framwork & Interface Interface to Performance																																	
Commencement of Early Stage Multi Discipline Eval Model																																	
Initial Trial & Dev of Multi-disciplinary Evaluation Model																																	
Capability to Assess Alt & Adv Hull Forms																																	
Commence Force Architecture Methodology																																	
Force Architecture Including Futures & Force Structure Alt																																	
Initial Open Systems Architecture & other Technology Assessments																																	
Assessment of Technology Benefits																																	
Technology Management & Cost Assessment Methods																																	
New POM06 projects																																	

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* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 13 of 14)

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[illegible]

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 14 of 14)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						FY 2006/2007 President's Budget (\$M)		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA-4				R-1 ITEM NOMENCLATURE PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Total PE Cost	0.000	0.000	27.021	33.223	18.663	3.983	1.824	2.540	
3127 Sea Base to Shore Connectors	0.000	0.000	14.415	13.849	13.569	0.000	0.000	0.000	
3131 Intratheater Connectors	0.000	0.000	4.848	11.850	5.094	3.983	1.824	2.540	
3132 Intertheater Connectors	0.000	0.000	7.758	7.524	0.000	0.000	0.000	0.000	
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Initial Capabilities and potential Material Approach Alternatives (ship concepts), identified in PE 0603563N (Ship Concept Advanced Design) or other efforts are transitioned to and further developed by this program after an Initial Capabilities Document (ICD) is approved and usually after an approved Concept Decision (CD). This project performs the Ship Feasibility Studies, including development of alternative ship concepts, required to address and support the Analysis of Alternatives (AOA) for new surface ships in the Navy Shipbuilding Plan. Under Acquisition Reform for new ships, traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering process. This project performs impact studies of warfare, hull, mechanical and electrical subsystems on advanced ship designs; enhances ship/ship system design methodologies that support feasibility studies; develops and upgrades the engineering tools, especially ship synthesis models, used to support AOA studies and other engineering efforts accomplished during the feasibility study phase; evaluates advanced and alternative technologies and develops total ship concepts with these technologies to assess their suitability; develops the initial documentation and design methodology required by the government for the design of surface ships in the Shipbuilding Program in accordance with the requirements of the DoD 5000; supports the development of the Capabilities Development Document (CDD) and other documentation required at Milestone A (which is usually program initiation for shipbuilding programs) and accomplishes other efforts for future ship acquisitions in support of a Milestone A. Ship Feasibility Study products include a description of the alternative ships' principal characteristics and mission critical subsystems, weight estimates, general arrangement sketches, technical risk assessments, and Life Cycle Cost estimate (LCCE) The objective of this project is to provide the decision makers with feasible, affordable alternatives to be selected for further development during the Total Ship Systems (previously called Contract and/or Functional) Design phase under PE0604567N.</p> <p>B. PROJECT UNIT EFFORTS are as follows</p> <p>(1) (3127) Sea Base to Shore Connectors - This project supports continued development of AoA studies, and all technical, programmatic and contractual documentation required for the acquisition of the Sea Base Connector. The major effort is the engineering development of the technical and contractual definition of the Sea Base Connector design with sufficient details for the prospective offeror to make a sound estimate of construction cost and schedule. It also serves as the technical definition from which the offeror will develop the detail design and testing package required to build and test the craft.</p> <p>(2) (3131) Intratheater Connectors - Intratheater connectors, capable of self-deploying to the theater of operations, provide the air and surface means to move forces and supplies over operational distances within a theater. Intratheater connectors provide the JFC a mobility asset that enables rapid force closure to the sea base from advanced bases, movement of logistics, ship-to-ship and ship-to-shore replenishment, and in appropriate threat environments, the maneuver of forces to the shore.</p> <p>(3) (3132) Intertheater Connectors - concept studies in support of ship system that will provide a highly flexible sea lift capability to quickly bring war material and strike aircraft from CONUS to the Seabase and secondarily provide high speed lift within the sea base.</p>									

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification					FY 2006/2007 President's Budget (\$M)		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES			PROJECT NUMBER AND NAME 3127 Sea Base to Shore Connectors			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	0.000	14.415	13.849	13.569	0.000	0.000	0.000
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>(3127) Sea Base to Shore Connectors:</p> <p>This program is designed to develop a High Speed Connector to meet the requirements of the Navy's Sea Base-to-Shore Connector initiatives and will provide an Over-the-Horizon, ship to objective amphibious lift capability as well as the capability to move across the beach. This project supports development of AoA studies, and all technical, programmatic and contractual documentation required for the acquisition of the Sea Base Connector. The major effort is the engineering development of the technical and contractual definition of the Sea Base Connector design with sufficient details for the prospective offeror to make a sound estimate of construction cost and schedule. It also serves as the technical definition from which the offeror will develop the detail design and testing package required to build and test the craft.</p>								

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EXHIBIT R-2, RDT&E Budget Item Justification		FY 2006/2007 President's Budget (\$M)		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES		PROJECT NUMBER AND NAME 3127 Sea Base to Shore Connectors	
B. Accomplishments/Planned Program					
	FY 04	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	14.415	13.849	
RDT&E Articles Quantity	0	0	0	0	
<p>This effort encompasses the engineering development of the technical and contractual definition of the Sea Base Connector design with sufficient details for the prospective offeror to make a sound estimate of construction cost and schedule. It also serves as the technical definition from which the offeror will develop the detail design and testing package required to build and test the craft.</p>					

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		FY 2006/2007 President's Budget (\$M)		DATE:	
				February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME			
RD TEN/BA-4	PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES	3127 Sea Base to Shore Connectors			
C. PROGRAM CHANGE SUMMARY:					
Funding:		FY 2004	FY 2005	FY 2006	FY 2007
President's Budget 2005		0.000	0.000	0.000	0.000
President's Budget 2006/2007		<u>0.000</u>	<u>0.000</u>	<u>14.415</u>	<u>13.849</u>
Total Adjustments		0.000	0.000	14.415	13.849
Programmatic Adjustments					
ADJUSTMENT TO ADD HIGH SPEED CONNECTORS		0.000	0.000	14.560	14.135
Miscellaneous Adjustments		0.000	0.000	-0.145	-0.286
Total Adjustment		0.000	0.000	14.415	13.849
Schedule:					
Not Applicable					
Technical:					
Not Applicable					

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EXHIBIT R-2, RDT&E Budget Item Justification										DATE:
FY 2006/2007 President's Budget (\$M)										February 2005
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME		
RD TEN/BA-4			PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					3127 Sea Base to Shore Connectors		
D. Other Program Funding Summary	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	To Complete	Total Cost
SCN 0204411N Surface Connector (55112)	0.000	0.000	0.000	0.000	0.000	0.000	99.088	209.027		308.115
(U) Related RDT&E:										
0604567 Ship Contract Design/ Live Fire T&E	0.000	1.696	0.000	0.000	18.156	22.395	8.816	1.719		52.782
E. Acquisition Strategy:										
FY05 - AoA, FY06-08 Concept Design, FY08-10 System Development, FY10-11 Production										
F. Major Performers:										
Field Activities & Locations - Work Performed										
NSWC Philadelphia, Phil. PA. Systems Engineering - Propulsion Systems										
NSWC Panama City, FL Systems Engineering - Hull, Mechanical & Electrical										
Contractors & Locations - Work Performed										
TBD										
Universities & Locations - Work Performed										
TBD										

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Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME						
RDTE&E, N / BA-4			PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					3127 Sea Base to Shore Connectors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development													0.000	
Ancillary Hardware Development													0.000	
Aircraft Integration													0.000	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	Various	Various						5.855		5.900		5.700	17.455	
Training Development													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			0.000	0.000		0.000		5.855		5.900		5.700	17.455	
Remarks:														
Development Support	Various	Various						4.000		3.579		3.489	11.068	
Software Development	Various	Various						3.000		2.800		2.800	8.600	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
Studies & Analyses													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		7.000		6.379		6.289	19.668	
Remarks:														

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Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME						
RDTE, N / BA-4			PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					3127 Sea Base to Shore Connectors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation								1.200		1.200		1.200	3.600	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		1.200		1.200		1.200	3.600	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program management Support								0.360		0.370		0.380	1.110	
Travel													0.000	
Transportation													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.000	0.000		0.000		0.360		0.370		0.380	1.110	
Remarks:														
<div style="border: 1px solid black; height: 100px; width: 100%;"></div>														
Total Cost			0.000	0.000		0.000		14.415		13.849		13.569	41.833	
Remarks:														

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:				February 2005							
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME															
RDT&E, N / BA-4										PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES										3127 Sea Base to Shore Connectors															
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Decision Reviews															△	MS A				△	MS B														
Acquisition Milestones													△	Broad Industry Participation							△	Industry Down Select													
Concept/Tech Development										△															△										

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&BA-4	PROGRAM ELEMENT PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY				PROJECT NUMBER AND NAME 3127 Sea Base to Shore Connectors			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Acquisition Milestones				3Q	4Q			
Contract Award							2Q	
Concept/Tech Development			1Q-4Q	1Q-4Q	1Q-4Q			

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification					FY 2006/2007 President's Budget (\$M)		DATE:		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				February 2005			
RD TEN/BA-4		PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES				3131 Intratheater Connectors			
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		0.000	0.000	4.848	11.850	5.094	3.983	1.824	2.540
RDT&E Articles Qty									
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: (3131) Intratheater Connectors- develops future capabilities in support of intratheater connectors. These ship systems will be capable of self-deploying to the theater of operations, provide the air and surface means to move forces and supplies over operational distances within a theater. Intratheater connectors provide the JFC a mobility asset that enables rapid force closure to the sea base from advanced bases, movement of logistics, ship-to-ship and ship-to-shore replenishment, and in appropriate threat environments, the maneuver of forces to the shore. The primary mission will be to provide logistical military lift from the advanced base to the sea base. The secondary missions will include the ability to provide logistical military lift from the seabase to the shore.</p> <p>The Intratheater connector will have the following characteristics: Moderate payload capacity (100's to 1,000's of short tons) Shallow draft Self deploying and sustaining for short periods Cross-theater laden ranges Beachable and non-beachable options will be investigated.</p>									

R-1 SHOPPING LIST - ITEM NO. 49

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		FY 2006/2007 President's Budget (\$M)		DATE:
				February 2005
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RD TEN/BA-4	PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES		3131 Intratheater Connectors	

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000	4.848	11.850
RDT&E Articles Quantity				

R&D Efforts for Intratheater Connector - addressing beaching and non-beaching variants including critical technology development, risk mitigation, analysis of alternatives, concept refinement, and development of analysis of performance specification.

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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EXHIBIT R-2, RDT&E Budget Item Justification		FY 2006/2007 President's Budget (\$M)		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RD TEN/BA-4	PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES	3131 Intratheater Connectors		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
President's Budget 2005	0.000	0.000	0.000	0.000
President's Budget 2006/2007	<u>0.000</u>	<u>0.000</u>	<u>4.848</u>	<u>11.850</u>
Total Adjustments	0.000	0.000	4.848	11.850
Programmatic Adjustments				
ADJUSTMENT TO ADD INTRATHEATER CONNECTORS	0.000	0.000	4.857	11.874
Miscellaneous Adjustments			<u>-0.009</u>	<u>-0.024</u>
Total Adjustment	0.000	0.000	4.848	11.850
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 12 of 25)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									FY 2006/2007 President's Budget (\$M)		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME			
RD TEN/BA-4			PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					3131 Intratheater Connectors			
D. Other Program Funding Summary	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	To Complete	Total Cost	
PE 0204228N SCN/BLI3043 Intratheater Connector Surface Support						204.622	176.873	180.609	TBD	562.104	
(U) Related RDT&E: Not Applicable											
PE 0604567N (U)SHIP CONTRACT DESIGN/ LIVE FIRE T&E	0.000	0.000	1.942	2.262	13.758	7.903	6.801	1.365	0.000	34.031	
E. Acquisition Strategy:											
Feasibility studies will be conducted to determine the best designs to meet new Navy requirements for beachable and non-beachable intratheater connectors.											
F. Major Performers:											
Field Activities & Locations - Work Performed											
NSWC, Carderock, MD - Concept development and engineering support											
NSWC, Panama City, FL - Concept development											
NFESC Pt Hueneme CA - Concept development											
SPAWAR Systems Center, Charleston SC - Concept development and engineering support											
NAVAIR Pax River, MD - Concept development and engineering support											
Office of Naval Research, Arlington, VA - Concept Development											
Contractors & Locations - Work Performed											
CSC, Washington, DC - Engineering Support											
Universities & Locations - Work Performed											

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					PROJECT NUMBER AND NAME 3131 Intratheater Connectors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development													0.000	
Ancillary Hardware Development													0.000	
Powered Lift Options	WX	NSWC						0.400	1Q	2.474	1Q		2.874	
Monohull Options	WX	NSWC						0.300	1Q	1.200	1Q		1.500	
Multi-hull Options	WX	NSWC						0.300	1Q	1.976	1Q		2.276	
Risk Mitigation Efforts	MAC	CSC						0.000		1.500	1Q		1.500	
Develop Applicable ABS Rules	MAC	ABS						0.000		0.900	1Q		0.900	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			0.000	0.000		0.000		1.000		8.050		0.000	9.050	
Remarks: The following elements are a part of the beaching craft critical technology. Powered Lift Options includes investigating various options of vessels that employ dynamic lift including: conventionals SES, retractable sea catamaran, inflatable sidehull SES, and modeling. Monohull Options includes stern beaching concept, bow beaching concept, and modeling. Multi-hull Options includes trimaren concept, catamaran concept, and modeling. Risk Mitigation for beaching craft includes ship interface modeling and shore interface modeling.														
Development Support	Various	Various						0.800	1Q	0.800	1Q		1.600	
Software Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
Studies & Analyses	Various	Various						3.048	1Q	0.000			3.048	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		3.848		0.800		0.000	4.648	
Remarks:														

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME						
RDTE&E, N / BA-4			PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					3131 Intratheater Connectors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support	MAC	CSC						0.000		3.000	1Q		3.000	
Government Engineering Support													0.000	
Program management Support													0.000	
Travel													0.000	
Transportation													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		3.000		0.000	3.000	
Remarks:														
Total Cost			0.000	0.000		0.000		4.848		11.850		0.000	16.698	
Remarks:														

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																										DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4										PROGRAM ELEMENT NUMBER AND NAME PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES										PROJECT NUMBER AND NAME 3131 Intratheater Connectors												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones												△ MS A						△ MS B														
Preliminary Design & Feasibility Studies																△																

R-1 SHOPPING LIST - ITEM NO. 49

* Not required for Budget Activities 1, 2, 3, and 6

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&BA-4	PROGRAM ELEMENT PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY				PROJECT NUMBER AND NAME 3131 Intratheater Connectors			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
AoA Completion				2Q				
Milestone B					3Q			
Contract Award						2Q		

R-1 SHOPPING LIST - ITEM NO. 49

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification					FY 2006/2007 President's Budget (\$M)				DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RD TEN/BA-4		PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES			3132 Intertheater Connectors					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost		0.000	0.000	7.758	7.524	0.000	0.000	0.000	0.000	
RDT&E Articles Qty										
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: (3132) Intertheater Connectors - conduct feasibility studies and preliminary design studies for a high speed sealift ship to deliver strike aircraft to the sea base. The ship will provide an improved MEB force closure for the sea base by deploying troops, non-self deploying aircraft and other high demand/low density (HD/LD) items via rapid surface strategic lift directly to the sea base. Analysis developed during Joint Staff sponsored Advanced Mobility Concept Study also indicates that rapid surface lift can close larger forces faster than airlift in certain circumstances. Consequently, the Intertheater Connector is envisioned to be a strategic sealift vessel capable of supporting closure of Marine Expeditionary Brigade, Army SBCT, Navy, Air Force or SOF units. Employment could support entire conflict spectrum.</p>										

R-1 SHOPPING LIST - ITEM NO. 49

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		FY 2006/2007 President's Budget (\$M)		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES		PROJECT NUMBER AND NAME 3132 Intertheater Connectors	
B. Accomplishments/Planned Program					
	FY 04	FY 05	FY 06	FY 07	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	7.758	7.524	
RDT&E Articles Quantity					
R&D Efforts for Intertheater Connector - addressing critical technology development, design studies, analysis of alternatives, and concept refinement.					

R-1 SHOPPING LIST - ITEM NO. 49

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EXHIBIT R-2, RDT&E Budget Item Justification		FY 2006/2007 President's Budget (\$M)		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RD TEN/BA-4	PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES		3132 Intertheater Connectors	
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
President's Budget 2005	0.000	0.000	0.000	0.000
President's Budget 2006/2007	<u>0.000</u>	<u>0.000</u>	<u>7.758</u>	<u>7.524</u>
Total Adjustments	0.000	0.000	7.758	7.524
Programmatic Adjustments				
ADJUSTMENT TO ADD INTERTHEATER CONNECTORS	0.000	0.000	7.768	7.539
Miscellaneous Adjustments			<u>-0.010</u>	<u>-0.015</u>
Total Adjustment	0.000	0.000	7.758	7.524
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 20 of 25)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									FY 2006/2007 President's Budget (\$M)		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA-4				PROGRAM ELEMENT NUMBER AND NAME PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					PROJECT NUMBER AND NAME 3132 Intertheater Connectors			
D. Other Program Funding Summary		FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	To Complete	Total Cost	
(U) NDSF RD TEN BA 4 09000/3119 HSS						35.081	23.504	39.848	49.785	TBD	148.218	
(U) Related RDT&E: Not Applicable												
E. Acquisition Strategy:												
Feasibility studies will be conducted to determine the best designs to meet new Navy requirements for the intertheater connector.												
F. Major Performers:												
Field Activities & Locations - Work Performed												
NSWC, Carderock, MD - Concept development and engineering support												
NSWC, Panama City, FL - Concept development												
NFESC Pt Hueneme CA - Concept development												
SPAWAR Systems Center, Charleston SC - Concept development and engineering support												
NAVAIR Pax River, MD - Concept development and engineering support												
Office of Naval Research, Arlington, VA - Concept Development												
Contractors & Locations - Work Performed												
CSC, Washington, DC - Engineering Support												

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME						
RDTE&E, N / BA-4			PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					3132 Intertheater Connectors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development													0.000	
Hullform Development	WX	NSWC						0.500	1Q	0.500	1Q	0.000	1.000	
Propulsor Development	WX	NSWC						2.758	1Q	2.524	1Q	0.000	5.282	
Hull/Propulsor Integration	WX	NSWC						1.000	1Q	1.000	1Q	0.000	2.000	
Light Weight Auxiliary Systems	WX	NSWC						0.500	1Q			0.000	0.500	
Industry Risk Reduction	WX	NSWC						0.500	1Q	0.500	1Q	0.000	1.000	
Training Development													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			0.000	0.000		0.000		5.258		4.524		0.000	9.782	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
Studies & Analyses													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES					PROJECT NUMBER AND NAME 3132 Intertheater Connectors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support	MAC	CSC						1.500	1Q	1.500	1Q	0.000	3.000	
Government Engineering Support	WX	NSWC						1.000	1Q	1.500	1Q	0.000	2.500	
Program management Support												0.000		
Travel												0.000		
Transportation												0.000		
SBIR Assessment												0.000		
Subtotal Management			0.000	0.000		0.000		2.500		3.000		0.000	5.500	
Remarks:														
<div style="border: 1px solid black; height: 100px; width: 100%;"></div>														
Total Cost			0.000	0.000		0.000		7.758		7.524		0.000	15.282	
Remarks:														

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: February 2005								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4										PROGRAM ELEMENT NUMBER AND NAME PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY STUDIES										PROJECT NUMBER AND NAME 3132 Intertheater Connectors												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones																																
AoA Completion																△																

R-1 SHOPPING LIST - ITEM NO. 49

* Not required for Budget Activities 1, 2, 3, and 6

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603564N/SHIP PRELIM DESIGN & FEASIBILITY S				PROJECT NUMBER AND NAME 3132 Intertheater Connectors			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
AoA Completion				4Q				

R-1 SHOPPING LIST - ITEM NO. 49

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603573N/ADVANCED SURFACE MACHINERY			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	6.461	3.367	0.000	0.000	0.000	0.000	0.000	0.000
1314/Advanced Surface Machinery Programs	1.428	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9043/Material Advanced Metalic Material Adv Dev	3.397	3.367	0.000	0.000	0.000	0.000	0.000	0.000
9355/Dockside Abrasive Waterjet Cutting	1.636	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Defense Emergency Response Funds (DERF) Funds: Not Applicable.								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
<p>(U) Advanced Surface Machinery Programs develop affordable advanced machinery and subsystems for surface ship propulsion, electric and auxiliary requirements. The Intercooled Recuperated (ICR) Gas Turbine Engine is a marine propulsion gas turbine. ICR will reduce life cycle fuel cost and provide an alternate prime mover candidate. A contract for ICR Advanced Development (AD) with an option for Full Scale Development was awarded to Westinghouse Electric Corporation in December 1991. The ICR is derived from the Rolls-Royce RB211 aircraft engine and through the introduction of an intercooler, recuperator, and variable area nozzles achieves approximately a 25% to 27% propulsion annual fuel savings when compared to the LM2500 on a mechanical drive ship.</p>								
<p>(U) ICR full scale system development testing began in July 1994 and completed at Pyestock, U.K. on 30 April 1999. An additional 457 hours of testing at NAVSSES Philadelphia which completed 16 December 1999, confirmed readiness for qualification testing. Recuperator recovery efforts continued following the failure in January 1995 of the initial recuperator. An Engineering Development Model (EDM) recuperator, which is the exhaust heat recovery unit that provides most of the fuel efficiency gains, was delivered to the test site in January 1999. Testing on this EDM has met expectations. System testing to date has completed over 2400 hours of successful testing including over 1150 hours with the second generation recuperator and 1250 hours with the EDM recuperator. The engine system failed the endurance qualification testing in FY02.</p>								
<p>(U) A Cooperative Agreement between the United Kingdom (U.K.) and United States governments was signed by USD(A&T) on 21 June 1994 and revised in March 1997 and again in November 2000 for in-kind and cash contributions to the ICR program. A Cooperative Agreement between the French and United States governments was signed by ASN(RD&A) on 30 August 1995 and revised in October 2000 for in-kind and cash contributions to the ICR program. Under terms of the MoU, the U.K. is planning to accomplish the shock testing in FY05.</p>								
<p>(U) Project 9043 - Congressional Add. This project funds the Metallic Material Advanced Development and Certification Program.</p>								
<p>(U) Project 9355 - Congressional Add. This project funds the Dockside Abrasive Waterjet Cutting.</p>								

R-1 SHOPPING LIST - Item No. 51

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 8)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4	PROGRAM ELEMENT NUMBER AND NAME 0603573N/ADVANCED SURFACE MACHINERY SYS	PROJECT NUMBER AND NAME 1314 / 9043 / 9355 ADVANCED SURFACE MACHINERY PROGRAMS																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">1.428</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.428	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.428	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p>The Royal and French navies continued execution of the 3000 hour endurance qualification test. Engine sustained a failure which resulted in the requirement for a complete hot section rebuild and the termination of the endurance qualification test. U.S. Navy responsibilities included participation in the Steering Committee, technical review, monitoring tests and accepting test results for compliance to U.S. Navy requirements. Continued ICR technology application studies. The Royal and French Navies initiated the shock test with a planned completion in FY05.</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">5.033</td><td style="text-align: center;">3.367</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	5.033	3.367			RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	5.033	3.367																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p>The goal of project 9043 (Congressional Add) funds the Metallic Material Advanced Development and Certification Program.</p><p>The goal of project 9355 (Congressional Add) is to develop and demonstrate the ability to perform abrasive water jet cutting at the dockside or in dry-dock setting. While this process is capable of cutting through thick substrate, such as that found in ship hulls, currently existing equipment is designed solely for use on the shop floors of manufacturing facilities. The prototype piece of equipment will demonstrate the ability to cut an access panel into a ship or submarine hull at dockside without producing noxious fumes, to controlling and collecting the working fluid and to completing this task without the threat of a fire.</p></div>																			

R-1 SHOPPING LIST - Item No. 51

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603573N/ADVANCED SURFACE MACHINERY SYSTEMS	PROJECT NUMBER AND NAME 1314/ADVANCED SURFACE MACHINERY PROGRAMS	

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
FY2005 President's Budget	1.432	0.000	0.000	0.000
FY 2006/2007 President's Budget	1.428	3.367	0.000	0.000
Total Adjustments	-0.004	3.367	0.000	0.000
Summary of Adjustments				
Miscellaneous Cuts	-0.004	-0.001	0.000	0.000
Congressional Adjustments		-0.032	0.000	0.000
Subtotal	-0.004	-0.033	0.000	0.000

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 51

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification							DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603573N/ADVANCED SURFACE MACHINERY SYS			PROJECT NUMBER AND NAME 1314/ADVANCED SURFACE MACHINERY PROGRAMS			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
None										

E. ACQUISITION STRATEGY:

Shock testing will occur in FY 2005. Program ends in FY 2005.

F. MAJOR PERFORMERS:

Northrop Grumman Marine Systems, Sunnyvale California, Prime contractor award date December 1991
David Taylor Research and Development Center/Carderock Division/ Philadelphia Detachment. Testing Support, annual

R-1 SHOPPING LIST - Item No. 51

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603573N/ADVANCED SURFACE MACHINERY SYS			1314/ADVANCED SURFACE MACHINERY PROGRAMS								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	NG, Sunnyvale, Ca	340.148										340.148	
Ancillary Hardware Development													0.000	
Component Development													0.000	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	C/CPAF	NG, Sunnyvale, Ca	2.508	0.150	11/03								2.658	
Training Development													0.000	
Licenses													0.000	
Tooling													0.000	
Cost Improvements			7.000										7.000	
Award Fees	C/CPAF	NG, Sunnyvale, Ca	8.823										8.823	
Subtotal Product Development			358.479	0.150		0.000		0.000				0.000	358.629	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks:														

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 5 of 8)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603573N/ADVANCED SURFACE MACHINERY SYS			PROJECT NUMBER AND NAME 1314/ADVANCED SURFACE MACHINERY PROGRAMS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Philadelphia PA	17.375	1.256	10/03						18.631	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			17.375	1.256		0.000		0.000		0.000	18.631	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel			0.100	0.022	various						0.122	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.100	0.022		0.000		0.000		0.000	0.122	
Remarks:												
Total Cost			375.954	1.428		0.000		0.000		0.000	377.382	
Remarks:												

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UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 6 of 8)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:								
APPROPRIATION/BUDGET ACTIVITY									PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-04									0603573N/ADVANCED SURFACE MACHINERY SYS												1314/ADVANCED SURFACE MACHINERY PROGRAMS											
Fiscal Year	2004				2005				2006				2007				2008				2009								2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Test & Evaluation							Shock Test ▲																									

R-1 SHOPPING LIST - Item No. 51

* Not required for Budget Activities 1, 2, 3, and 6

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CLASSIFICATION:

[illegible]

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 8 of 8)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4				R-1 ITEM NOMENCLATURE 0603581N - Littoral Combat Ship (LCS)				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	158.314	452.611	576.454	299.150	159.783	101.338	118.404	50.637
3096 - LCS Development	158.314	224.156	117.310	130.834	57.704	37.148	37.850	16.379
3129 - Mission Package Project	0.000	0.000	209.908	131.578	65.347	57.114	80.554	34.258
4018 - Littoral Combat Ship Construction	0.000	228.455	249.236	36.738	36.732	7.076	0.000	0.000
Defense Emergency Response Funds (DERF) Funds: N/A								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (PE) provides funds for development integration and testing of the Littoral Combat Ship (LCS). Also included in the PE is detail design and construction for two ships of Flight 0, and procurement of mission packages for these Flight 0 ships. The LCS is to be a fast, agile, and stealthy surface combatant capable of operating in support of anti-access missions against asymmetric threats in the littorals. Primary access-focused missions include prosecution of small boats, mine counter-measures, littoral anti-submarine warfare (ASW). Inherent capabilities include: intelligence, surveillance and reconnaissance, homeland defense, Special Operating Forces (SOF) support and logistic support for movement of personnel and supplies, maritime interdiction / interception operations (MIO), anti-terrorism / force protection (AT/FP), air self defense, and joint littoral mobility.								

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 32)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)				PROJECT NUMBER AND NAME 3096 - Littoral Combat Ship Development			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	158.314	224.156	117.310	130.834	57.704	37.148	37.850	16.379
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The LCS is to be a fast, agile, and stealthy surface combatant capable of operating in support of anti-access missions against asymmetric threats in the littorals. Primary access-focused missions include: prosecution of small boats, mine counter-measures, littoral anti-submarine warfare (ASW). Inherent capabilities include intelligence, surveillance and reconnaissance, homeland defense, SOF support and logistic support for movement of personnel and supplies. This project provides funds for the total ship system engineering, integration, program execution, platform development, and mission systems development. Mission systems development includes architectures, interfaces and development of mission systems. Mission systems development also includes the procurement of the mission packages to be used on the Flight 0 ships. Platform development includes platform experimentation and platform and ship system design and integration.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 3096 - Littoral Combat Ship Development	

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
LCS Program	15.629	13.000	6.727	8.088
RDT&E Articles Quantity				

LCS Program Analysis, Engineering, Integration, & Management:
 Continue cost and risk analysis. Continue the development of operational context in which LCS will operate. This includes development and update of Concept of Operations (CONOPS), Initial Capabilities Document (ICD), Capabilities Development Document (CDD) and the Capabilities Performance Document (CPD). Begin work on Flight 1 acquisition documentation, prepare for Flight 0 OIPT in December 2005. Begin documentation for Milestone B. Continue requirements and effectiveness analysis for Flight 0 and begin Fight 1. Completed; IRD and ICD updated/developed and Navy approved in support of Final Design request for proposal, CONOPS finalized with Fleet approval, Flight 0 CDD developed and JROC approved for Milestone A and Program Initiation, and began risk management planning and implementation. Completed interim requirements document for preliminary design RFP.

	FY 04	FY 05	FY 06	FY 07
LCS System-of-Systems Development, Engineering & Experimentation	34.535	42.209	38.583	34.746
RDT&E Articles Quantity				

LCS System-of-Systems Development, Engineering & Experimentation
 Continue Systems Engineering, Integration Testing to include; System Architecture/ Interface Development, Ship Systems Engineering/Integration/Test, Core Systems Engineering/Integration/Test, Network Systems Engineering/Integration/Test, Human Systems Integration/Engineering/Test, Logistics & Training Development, and Shipbuilding Materials and Construction Technique Development.
 FY 04 LCS Technical Team participates, provides oversight and monitors industry preliminary system design, and final design for Flight 0. Completed; Ship Design management and technical review of Industry Preliminary design. Awarded Final Design contracts.
 FY 05 - The LCS Technical Team continues to provide oversight and monitoring of Flight 0 final design and begin to provide support for the Flight 1 Preliminary System Design
 FY 06 - Continue support of Preliminary System Design for Flight 1 and begin oversight and participation for Flight 1 preliminary design.
 FY 07 begin participation in Flight 1 final design.
 The systems development team consists of Laboratories, Government Warfare Centers, Universities and selected technical support contractors. The team provides the engineering expertise to evaluate/support industry designs and technology demonstrations of new system concepts and mission systems in order to reduce risk on components and subsystems.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 3096 - Littoral Combat Ship Development		

B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
LCS Seaframe Development & Design	57.165	74.000	60.000	75.000
RDT&E Articles Quantity				

LCS Seaframe Development & Design
 FY 04 - Continued Preliminary Design for Flight 0. Awarded two contracts for Flight 0 Final System Design with an option for Detail Design and Construction.
 FY 05- Continue Final System Design and Detail Design and Construction for Flight 0.
 FY 06- Begin Flight 1 preliminary design.
 FY 07 - Continue Preliminary Design and begin Final Design for Flight 1

	FY 04	FY 05	FY 06	FY 07
LCS Test & Evaluation	8.000	5.000	12.000	13.000
RDT&E Articles Quantity				

LCS Test & Evaluation
 Continue LCS Test and Evaluation management to include TEMP, LFT&E management plan. Begin planning for Flight 0 test events.
 FY04 - Completed test & evaluation (T&E) strategy. Developed updated T&E strategy and draft Test & Evaluation Master Plan (TEMP) to reflect contract award. Began planning for developmental testing (DT) and early operational assessment (EOA)
 FY05 - Begin EOA for Flight 0 ship 1. Continue Engineering Testing /Development Testing (ET/DT).
 FY06 - Begin DT assistance. Begin component and system shock testing. Continue modeling and simulation (M&S) and surrogate testing.

	FY 04	FY 05	FY 06	FY 07
LCS Mission Module Development & Procurement	42.985	89.947	0.000	0.000
RDT&E Articles Quantity				

Mission capabilities in littoral mine warfare, small boat neutralization and littoral anti-submarine warfare to enable the US Joint Force to operate in the littoral. Mission systems development includes architectures, interfaces and development of mission systems. Mission systems development also includes the procurement of the mission packages to be used on the Flight 0 ships.
 Mine Warfare Mission Package (MIW) will provide the Joint force commander with the capability to conduct organic mine countermeasure (MCM) operations ranging from first response mine detection and avoidance, to neutralization and sweeping for littoral conditions that preclude hunting, enabling Joint operations to be conducted ahead of power projection forces with reduced need for escorts. This will open transit lanes and operating areas for naval forces. MCM operations will reduce the timeline for access to the contested littoral thereby providing options to the joint force commander. Additionally, LCS should have the capability to deploy distributed sensors that will enhance detection, classification, identification and targeting of enemy mines.
 Littoral Anti-Submarine Warfare Mission Package (ASW) will provide ASW capabilities while operating in a contested littoral environment. Leveraging multiple distributed sensors netted together, LCS will exploit real time undersea data, using maneuver and deception to enhance detection, classification, identification, targeting and destruction of enemy submarines.
 Littoral Surface Warfare Mission Package (SUW) will provide the capability to detect, track and engage small boat threats, giving the joint force commander the ability to maximize striking power or successfully move through a restricted area. FY 04-07 - Continue technology development and demonstration activities. Continue mission system zone and module development and integration, to include the following; MIW, ASW and SUW Mission Module Development, Procurement, Integration, & Testing (funds Navy participation in Joint Advanced Concept Technology Demonstration (ACTD) (SPARTAN mission module package). Flight 0 Mission systems for each mission area identified, funding itemized, development and procurement plan in execution.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship	PROJECT NUMBER AND NAME 3096 - LCS Development		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY05 President's Budget	166.180	244.411	288.442	285.934
FY06 President's Budget	158.314	224.156	117.310	130.834
Total Adjustments	-7.866	-20.255	-171.132	-155.100
(U) Summary of Adjustments				
SBIR	-3.712		2.529	3.286
Inflation Adjustment	-0.154			
Execution Realignment	-4.000			
Programmatic adjustments		-20.255	-173.661	-158.386
Total	-7.866	-20.255	-171.132	-155.100

Schedule:

See Individual Projects

Technical:

TBD

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME PE 0603581N- Littoral Combat Ship (LCS)			PROJECT NUMBER AND NAME 3096 - LCS Development				

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
BLI 160000 (OPN)	0.000	0.000	36.811	108.376	221.455	748.826	738.664	813.653	CONT	CONT
BLI 212700 (SCN)	0.000	0.000	0.000	542.442	779.660	1127.203	1112.312	1110.316		
BLI 422100 (WPN)	0.000	0.000	0.000	0.000	0.000	48.315	48.367	59.259		

E. ACQUISITION STRATEGY:

(U) The LCS acquisition strategy encompasses multiple phases: Phases I and II are Concept Refinement and Technology Development, consisting of Preliminary Design, Final Design and Detail Design and Construction for Flight 0 ships. A parallel three phase approach is planned for Flight 1 ships. I - Preliminary System Design, I - Final System Design and I - Detail Design and Construction.

F. MAJOR PERFORMERS:

General Dynamics - Bath Iron Works
Lockheed Martin

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship			PROJECT NUMBER AND NAME 3096 - LCS Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Preliminary Design (Flight 0)	Compet	LM, BIW, RAYTHEON	24	6.686	4QFY03							CONT	CONT	
Final Design (Flight 0)	Compet	LM, BIW	0	50.479	3QFY04	73.474	1QFY05					CONT	CONT	
Mission Sys Dev	Various	Various	3	42.985	Various	89.947	Various					CONT	CONT	
Preliminary Design (Flight 1)	Compet	TBD						60.000	1QFY06			CONT	CONT	
Final Design (Flight 1)	Compet	TBD								75.000	2QFY07	CONT	CONT	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Product Development			27.000	100.150		163.421		60.000		75.000		CONT	CONT	
Remarks:														
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Support			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 53

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 7 of 32)

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CLASSIFICATION:

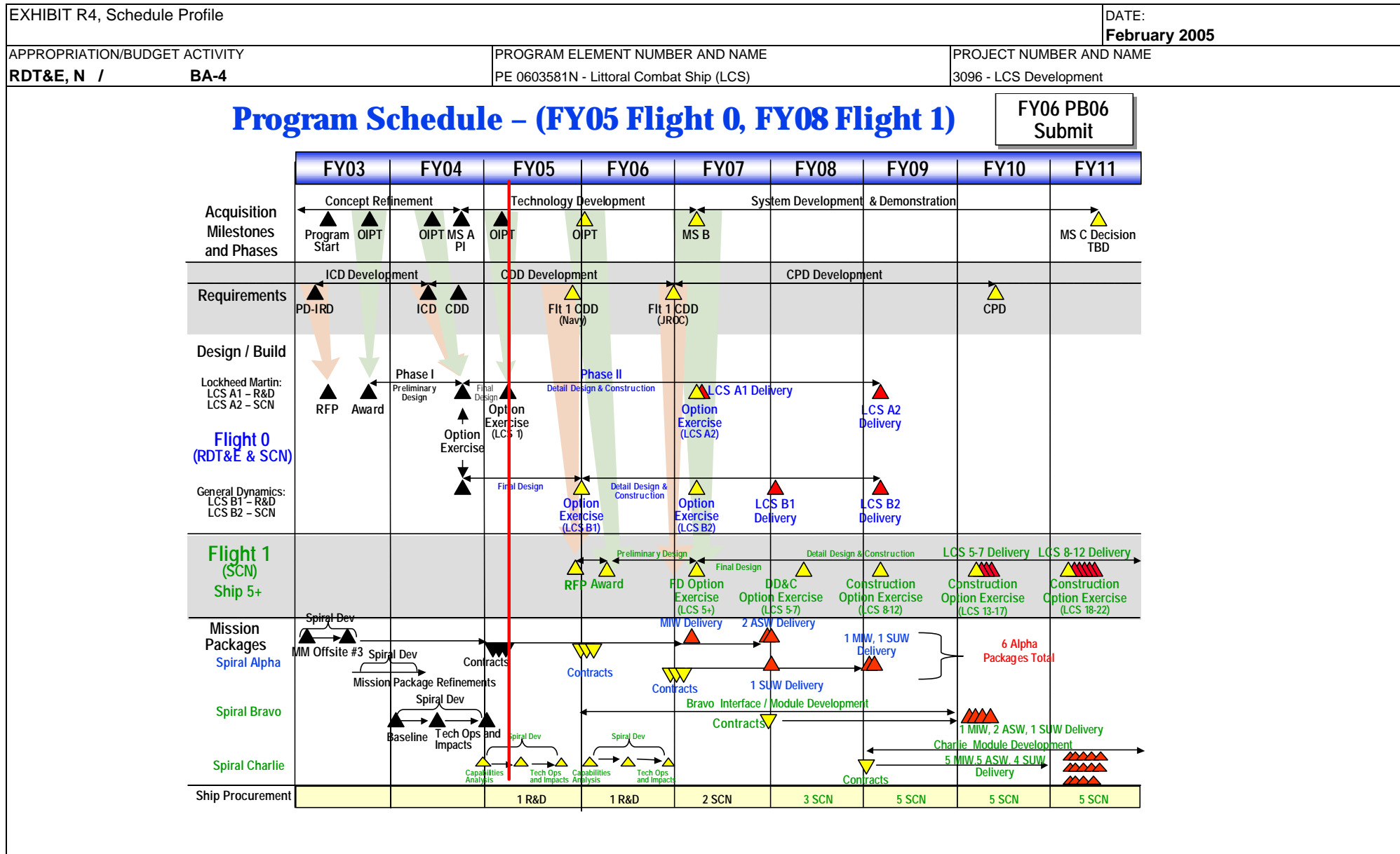
Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship			PROJECT NUMBER AND NAME 3096 - LCS Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NSWC/CD Bethesda, MD	0.000	3.000	1QFY04	1.000	1QFY05	4.000	1QFY06	4.500	1QFY07	CONT	CONT	
Developmental Test & Evaluation	WX	NSWC/DD, Dahlgren, VA	0.000	2.000	1QFY04	1.000	1QFY05	4.000	1QFY06	4.500	1QFY07	CONT	CONT	
Developmental Test & Evaluation	Various	Various	0.000	3.000	1QFY04	3.000	1QFY05	4.000	1QFY06	4.000	1QFY07	CONT	CONT	
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	8.000		5.000		12.000		13.000		0.000	CONT	
Remarks:														
Contractor Engineering Support	Seaport	ANTEON, Arlington, VA	1.350	5.298	1QFY04	3.500	1QFY05					CONT	CONT	
	Seaport	Various	0.777	5.180	1QFY04	7.000	1QFY05					CONT	CONT	
	Comp							11.500	1QFY06	9.752	1QFY07			
Government Engineering Support	WX	NSWC/CD, Bethesda, MD	0.700	8.045	1QFY04	10.026	1QFY05	6.000	1QFY06	6.000	1QFY07	CONT	CONT	
	WX	NSWC/DD, Dahlgren, VA	2.700	9.143	1QFY04	9.500	1QFY05	6.000	1QFY06	6.000	1QFY07	CONT	CONT	
	WX	NSWC/PC, Panama City, FL	0.170	6.689	1QFY04	5.500	1QFY05	3.000	1QFY06	3.000	1QFY07	CONT	CONT	
	Various	Government Activities	1.300	1.862	1QFY04	7.000	1QFY05	5.000	1QFY06	5.000	1QFY07	CONT	CONT	
	WX	NUWC, Newport, RI	0.000	2.858	1QFY04	3.800	1QFY05	3.500	1QFY06	3.338	1QFY07	CONT	CONT	
	WX	SPAWAR, San Diego, CA	0.200	3.125	1QFY04	4.000	1QFY05	3.500	1QFY06	3.338	1QFY076	CONT	CONT	
	WX	NSWC Div Crane		0.625	1QFY04									
	WX	NAWC AD, Pax River		2.800	1QFY04			2.313	1QFY06	2.142	1QFY07			
Program Management Support	Various	Various	0.875	3.890	1QFY04	4.897	1QFY05	3.910	1QFY06	3.736	1QFY07	CONT	CONT	
Labor (Research Personnel)	CPFF	APL/JHU Laurel MD	0.250	0.570	1QFY04	0.312	1QFY05	0.337	1QFY06	0.328	1QFY07	CONT	CONT	
Travel	Various	NAVSEA		0.081	1QFY04	0.200	1QFY05	0.250	1QFY06	0.200	1QFY07			
Subtotal Management			8.322	50.164		55.735		45.310		42.834		CONT	CONT	
Remarks:														
Total Cost			35.322	158.314		224.156		117.310		130.834		0.000	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 53

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 8 of 32)

CLASSIFICATION:



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Exhibit R-4a, Schedule Detail					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&BA-4	PE 0603581N - Littoral Combat Ship				3096 - LCS Development			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Preliminary Design (Flight 0)	1Q-3Q							
Final Design (Flight 0)	3Q-4Q	1Q-2Q						
Detail Design and Construction (Flight 0)		2Q-4Q	1Q-4Q	1Q-2Q				
Mission System Development & Platform Exp	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
Preliminary Design (Flight 1)			2Q-4Q	1Q				
Final Design (Flight 1)				2Q-4Q	1Q-2Q			
Detail Design and Construction (Flight 1) - SCN Funded					2Q-4Q	1Q-4Q		
Milestone A	3Q							
Milestone B				2Q				
Milestone C								1Q
First Ship Delivery (Flight 0)				2Q				
Ship 2 Delivery (Flight 0) - SCN Funded						2Q		
Ship 3 Delivery (Flight 0)					1Q			
Ship 4 Delivery (Flight 0) - SCN Funded						2Q		
Lead Ship Delivery (Flight 1) - SCN Funded							1Q	
NOTE:								
Developmental Testing	4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q	
Operational Testing		2Q	2Q	2Q-4Q	2Q-4Q		2Q-4Q	
Engineering Events - TBD								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)				PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	0.000	209.908	131.578	65.347	57.114	80.554	34.258
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Mission capabilities in littoral mine warfare, small boat neutralization and littoral anti-submarine warfare to enable the US Joint Force to operate in the littoral. Mission systems development includes architectures, interfaces and development of mission systems. Mission systems development also includes the procurement of the mission packages to be used on the Flight 0 ships.

Mine Warfare Mission Package (MIW) will provide the Joint force commander with the capability to conduct organic mine countermeasure (MCM) operations ranging from first response mine detection and avoidance, to neutralization and sweeping for littoral conditions that preclude hunting, enabling Joint operations to be conducted ahead of power projection forces with reduced need for escorts. This will open transit lanes and operating areas for naval forces. MCM operations will reduce the timeline for access to the contested littoral thereby providing options to the joint force commander. Additionally, LCS should have the capability to deploy distributed sensors that will enhance detection, classification, identification and targeting of enemy mines.

Littoral Anti-Submarine Warfare Mission Package (ASW) will provide ASW capabilities while operating in a contested littoral environment. Leveraging multiple distributed sensors netted together, LCS will exploit real time undersea data, using maneuver and deception to enhance detection, classification, identification, targeting and destruction of enemy submarines.

Littoral Surface Warfare Mission Package (SUW) will provide the capability to detect, track and engage small boat threats, giving the joint force commander the ability to maximize striking power or successfully move through a restricted area.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	25.117	13.487															
RDT&E Articles Quantity																			
MIW Mission Module Package - FY06-07: Continue technology development and demonstration activities; MIW modularization development.																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	9.969	19.438															
RDT&E Articles Quantity																			
Common - Continue technology development and demonstration activities. Continue mission system zone and module development and integration. (funds Navy participation in Joint Advanced Concept Technology Demonstration (ACTD) (SPARTAN mission module package). FY06: Flight 0 Interface Develop; FY07: Program support; FY06 & 07: Flight 1 interface Mod Dev/Integration																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development																	
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	118.974	38.192															
RDT&E Articles Quantity			2																
<div style="border: 1px solid black; min-height: 100px; margin-top: 5px;"> ASW Mission Module Package - FY06-07: Continue technology development and demonstration activities; ASW modularization development; FY06: (\$71.400) Procure (2) ASW partial packages (excludes RMVs procure under BLI 1600) </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">9.708</td> <td style="text-align: center;">22.524</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	9.708	22.524	RDT&E Articles Quantity				
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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	35.282	17.419															
RDT&E Articles Quantity			1																
<div style="border: 1px solid black; min-height: 100px; margin-top: 10px;"> <p>SUW Mission Modules Package - FY06-07: Continue technology development and demonstration activities; SUW modularization development; FY06: (\$15.300) Procure (1) SUW packages.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">10.858</td> <td style="text-align: center;">20.518</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	10.858	20.518	RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost	0.000	0.000	10.858	20.518															
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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship	PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY05 President's Budget	0.000	0.000	0.000	0.000
FY06 President's Budget	0.000	0.000	209.908	131.578
Total Adjustments	0.000	0.000	209.908	131.578

(U) Summary of Adjustments

Create new LCS Mission Package Project			210.364	135.196
Programmatic adjustments			-0.456	-3.618
Total	0.000	0.000	209.908	131.578

Schedule:

See R-4 for breakout.

Technical:

TBD

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME PE 0603581N- Littoral Combat Ship (LCS)			PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development				

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
BLI 1600 (OPN)	0.000	0.000	36.811	108.376	221.455	748.826	738.664	813.653	CONT	CONT
BLI 4221 (WPN)	0.000	0.000	0.000	0.000	0.000	48.315	48.367	59.259	CONT	CONT
BLI 212700 (SCN)	0.000	0.000	0.000	542.442	779.660	1127.203	1112.312	1110.316		

E. ACQUISITION STRATEGY:

((U) The LCS acquisition strategy encompasses multiple phases: Phases I and II are Concept Refinement and Technology Development, consisting of Preliminary Design, Final Design and Detail Design and Construction for Flight 0 ships. A parallel three phase approach is planned for Flight 1 ships. - Preliminary System Design, I - Final System Design and I - Detail Design and Construction.

F. MAJOR PERFORMERS:

TBD.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME							
RDT&E, N / BA-4			PE 0603581N - Littoral Combat Ship				3129 - LCS Mission Package Development - MIW							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
MIW Mission Module Development and integration	WX	Various	0.000	0.000	N/A	0.000	N/A	21.177	10/05	8.487	10/06	Continuing	Continuing	
Modularization	Various	Various	0.000	0.00	N/A	0.000	N/A	4.000	10/05	5.000	10/06	Continuing	Continuing	
Equipment and Hardawre														
- REMUS	Option	Hydronid, MA	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
- USV	F/FP	USMI, MS	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
- AMCM Support Equip Module	TBD	Unknown	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
Subtotal Product Development			0.000	0.000		0.000		25.177		13.487		Continuing	CONT	
Remarks:														
Flight 0 Interface Development	Various	Various	0.000	0.000	N/A	0.000	N/A	0.000	10/05	0.000	10/06	0.000	0.000	
Flight 1 Interface Modular Development	Various	Various	0.000	0.000	N/A	0.000	N/A	2.000	10/05	5.020	10/06	Continuing	Continuing	
T&E	WX	Various	0.000	0.000	N/A	0.000	N/A	0.000	10/05	2.000	10/06	Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
			0.000	0.000		0.000		2.000		7.020		0.000	2.000	
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship			PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development - MIW								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Common Module Development and integration														
- SPARTAN	Various	Various	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
- FIRESOOUT	Various	Various	0.000	0.000	N/A	0.000	N/A	1.100	10/05	1.900	10/06	Continuing	Continuing	
- MH60R=EO/IR	Various	Various	0.000	0.000	N/A	0.000	N/A	0.700	10/05	0.700	10/06	Continuing	Continuing	
- MH60R W/Torp	Various	Various	0.000	0.000	N/A	0.000	N/A	0.800	10/05	0.500	10/06	Continuing	Continuing	
- Common Vehicle	Various	Various	0.000	0.000	N/A	0.000	N/A	0.700	10/05	5.000	10/06	Continuing	Continuing	
- Common C2	Various	Various	0.000	0.000	N/A	0.000	N/A	4.200	10/05	4.000	10/06	Continuing	Continuing	
Subtotal Development & Integration			0.000	0.000		0.000		7.500		12.100		Continuing	Continuing	
Remarks:														
Program Management Support	Various	Various	0.000	0.000	N/A	0.000	N/A	0.390	10/05	0.300	10/06	Continuing	Continuing	
Travel		NAVSEA	0.000	0.000	N/A	0.000	N/A	0.017	10/05	0.018	10/06	Continuing	Continuing	
Subtotal Management			0.000	0.000		0.000		0.407		0.318		Continuing	Continuing	
Remarks:														
MIW Mission Package Total Cost			0.000	0.000		0.000		35.084		32.925		Continuing	Continuing	
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship			PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development - ASW								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ASW Mission Module Development														
and integration	WX	Various	0.000	0.000	N/A	0.000	N/A	42.574	10/05	31.192	10/06	Continuing	Continuing	
Modularization	Various	Various	0.000	0.000	N/A	0.000	N/A	5.000	10/05	7.000	10/06	Continuing	Continuing	
Equipment and Hardawre													CONT	
- SPARTAN ASW Module	C/FP	Unknown	0.000	0.000	N/A	0.000	N/A	14.000	12/05	0.000	10/06	0.000	14.000	N/A
- USV	C/FP	LHM, Syracuse	0.000	0.000	N/A	0.000	N/A	10.400	12/05	0.000	10/06	0.000	10.400	N/A
- Torpedo Countermeasures	C/FP	Unknown	0.000	0.000	N/A	0.000	N/A	10.000	12/05	0.000	10/06	0.000	10.000	N/A
- Towed Array	C/FP	Unknown	0.000	0.000	N/A	0.000	N/A	20.000	12/05	0.000	10/06	0.000	20.000	N/A
- Distrubuted Expendable System	C/FP	Unknown	0.000	0.000	N/A	0.000	N/A	17.000	12/05	0.000	10/06	0.000	17.000	N/A
Subtotal Product Development			0.000	0.000		0.000		118.974		38.192		Continuing	Continuing	
Remarks:														
Flight 0 Interface Development	Various	Various	0.000	0.000	N/A	0.000	N/A	0.000	10/05	0.000	10/06	Continuing	Continuing	
Flight 1 Interface Modular Development	Various	Various	0.000	0.000	N/A	0.000	N/A	1.004	10/05	7.106	10/06	Continuing	Continuing	
T&E	WX	Various	0.000	0.000	N/A	0.000	N/A	0.000	10/05	2.000	10/06	Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Support			0.000	0.000		0.000		1.004		9.106		0.000	1.004	
Remarks:														

R-1 SHOPPING LIST - Item No. 53

UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RD&E, N / BA-4			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship			PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development - ASW								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Common Module Development and integration														
- SPARTAN	Various	Various	0.000	0.000	N/A	0.000	N/A	0.000	10/05	0.000	N/A	0.000	0.000	
- FIRESOOUT	Various	Various	0.000	0.000	N/A	0.000	N/A	1.100	10/05	1.800	10/06	Continuing	Continuing	
- MH60R=EO/IR	Various	Various	0.000	0.000	N/A	0.000	N/A	0.700	10/05	0.700	10/06	Continuing	Continuing	
- MH60R W/Torp	Various	Various	0.000	0.000	N/A	0.000	N/A	0.896	10/05	0.500	10/06	Continuing	Continuing	
- Common Vehicle	Various	Various	0.000	0.000	N/A	0.000	N/A	0.700	10/05	5.100	10/06	Continuing	Continuing	
- Common C2	Various	Various	0.000	0.000	N/A	0.000	N/A	5.000	10/05	5.000	10/06	Continuing	Continuing	
													0.800	
Subtotal Development & Integration			0.000	0.000		0.000		8.396		13.100		Continuing	Continuing	
Remarks:														
Program Management Support	Various	Various	0.000	0.000	N/A	0.000	N/A	0.290	10/05	0.300	10/06	Continuing	Continuing	
Travel		NAVSEA	0.000	0.000	N/A	0.000	N/A	0.020	10/05	0.018	10/06	Continuing	Continuing	
Subtotal Management			0.000	0.000		0.000		0.310		0.318		Continuing	Continuing	
Remarks:														
ASW Mission Package Total Cost			0.000	0.000		0.000		128.684		60.716		Continuing	Continuing	
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME							
RDT&E, N / BA-4			PE 0603581N - Littoral Combat Ship				3129 - LCS Mission Package Development - SUW							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SUW Mission Module Development														
and integration	WX	Various	0.000	0.000	N/A	0.000	N/A	16.862	10/05	12.500	10/06			
Modularization	Various	Various	0.000	0.000	N/A	0.000	N/A	3.120	10/05	4.919	10/06	Continuing	Continuing	
												Continuing	Continuing	
Equipment and Hardawre														
- USV Module (Missile Package)	F/FP	Raytheon, AZ	0.000	0.000	N/A	0.000	N/A	3.200	12/05	0.000	N/A	0.000	3.200	N/A
- 11M RHIB	FFP	USMI, MS	0.000	0.000	N/A	0.000	N/A	5.200	12/05	0.000	N/A	0.000	5.200	N/A
- NetFires	FFP	Raytheon, AZ	0.000	0.000	N/A	0.000	N/A	3.500	12/05	0.000	N/A	0.000	3.500	N/A
- Med Cal Gun Module	FFP	ATK, MD	0.000	0.000	N/A	0.000	N/A	3.000	12/05	0.000	N/A	0.000	3.000	N/A
- Non-Lethal Weapon	FFP	Diamond Nets, WA	0.000	0.000	N/A	0.000	N/A	0.400	12/05	0.000	N/A	0.000	0.400	N/A
Subtotal Product Development			0.000	0.000		0.000		35.282		17.419		Continuing	Continuing	
Remarks:														
Flight 0 Interface Development	Various	Various	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.000	
Flight 1 Interface Modular Development	Various	Various	0.000	0.000	N/A	0.000	N/A	1.250	10/05	7.000	10/06	Continuing	Continuing	
T&E	WX	Various	0.000	0.000	N/A	0.000	N/A	0.000	10/05	1.000	10/06	Continuing	Continuing	
Subtotal Product Development			0.000	0.000		0.000		1.250		8.000		Continuing	Continuing	
Remarks:														

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CLASSIFICATION:

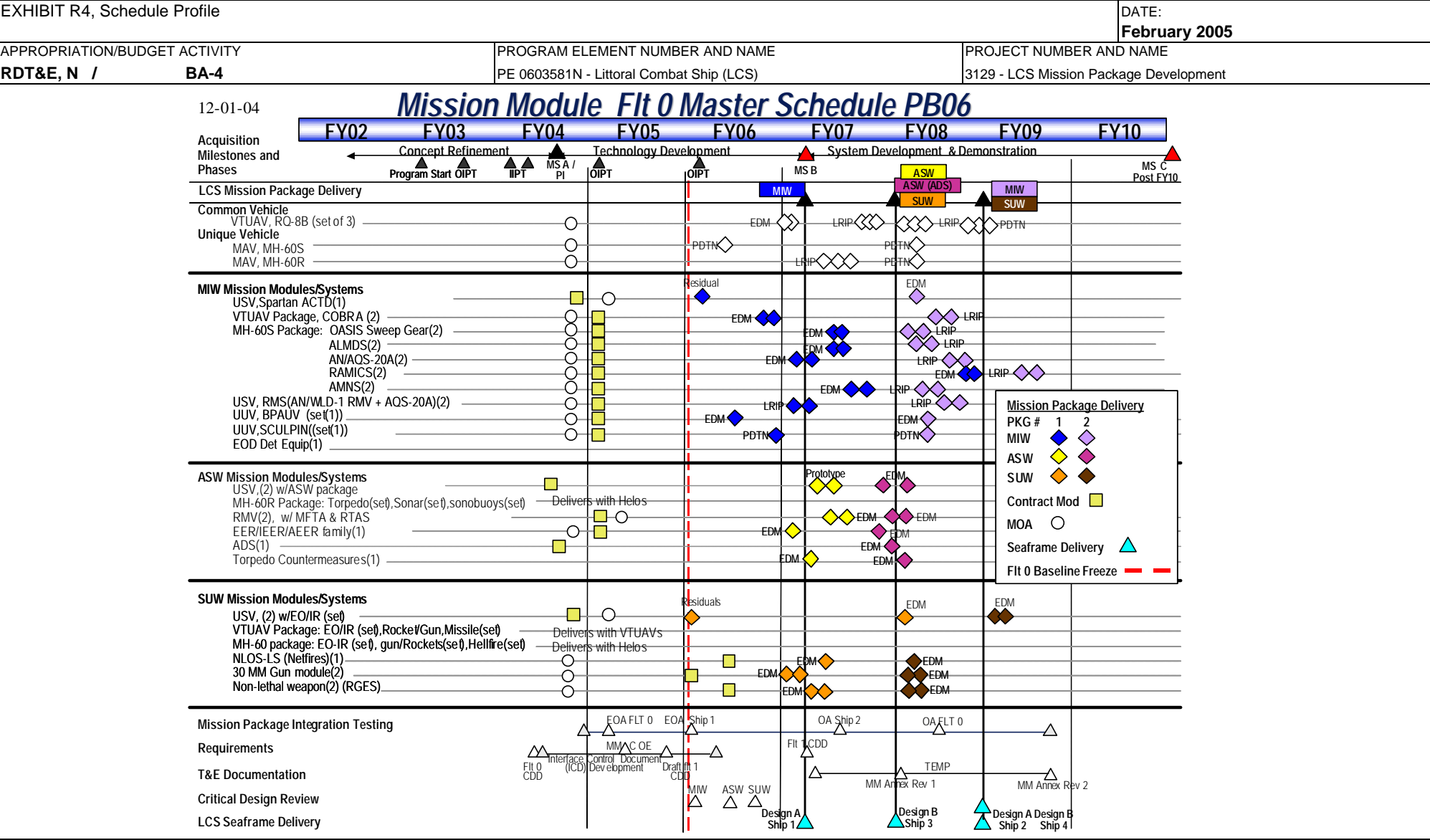
Exhibit R-3 Cost Analysis (page 2)									DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			PE 0603581N - Littoral Combat Ship			3129 - LCS Mission Package Development - SUW								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Common Module Development and integration														
- SPARTAN ACTD	Various	Various	0.000	0.000	N/A	0.000	N/A	0.000	10/05	0.000	10/06	0.000	0.000	
- FIRESOOUT	Various	Various	0.000	0.000	N/A	0.000	N/A	3.200	10/05	1.800	10/06	Continuing	Continuing	
- MH60R=EO/IR	Various	Various	0.000	0.000	N/A	0.000	N/A	0.600	10/05	0.600	10/06	Continuing	Continuing	
- MH60R W/Torp	Various	Various	0.000	0.000	N/A	0.000	N/A	0.800	10/05	0.500	10/06	Continuing	Continuing	
- Common Vehicle	Various	Various	0.000	0.000	N/A	0.000	N/A	0.600	10/05	5.000	10/06	Continuing	Continuing	
- Common C2	Various	Various	0.000	0.000	N/A	0.000	N/A	4.000	10/05	4.300	10/06	Continuing	Continuing	
Subtotal Development & Integration			0.000	0.000		0.000		9.200		12.200		Continuing	Continuing	
Remarks:														
Program Management Support	Various	Various	0.000	0.000	N/A	0.000	N/A	0.390	10/05	0.300	10/06	Continuing	Continuing	
Travel		NAVSEA	0.000	0.000	N/A	0.000	N/A	0.018	10/05	0.018	10/06	Continuing	Continuing	
Subtotal Management			0.000	0.000		0.000		0.408		0.318		Continuing	Continuing	
Remarks:														
SUW Mission Package Total Cost			0.000	0.000		0.000		46.140		37.937		Continuing	Continuing	
All Mission Packages Total Cost			0.000	0.000		0.000		209.908		131.578		Continuing	Continuing	
Remarks:														

R-1 SHOPPING LIST - Item No. 53

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 22 of 32)

CLASSIFICATION:



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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship				PROJECT NUMBER AND NAME 3129 - LCS Mission Package Development			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Milestone A								
Milestone B			4Q					
Milestone C								2Q
Common Vehicle - VTUAV, RQ-8B			4Q EDM	2Q LRIP	1Q-2Q LRIP 4Q - 2Q PDTN			
Unique Vehicle								
MH-60S			2Q PDTN		1Q-2Q PDTN			
MH-60R				1Q-3Q LRIP	1Q-2Q PDTN			
MIW Mission Modules/Systems Delivery			3Q-4Q			1Q-2Q		
ASW Mission Module/Systems Delivery				2Q-3Q	1Q			
SUW Mission Modules/System Delivery					1Q	1Q		
Integration Testing			1Q- EOA	2Q OA	3Q OA	4Q		
CDR			(FY06)1Q MIW 2Q ASW 3Q SUW					
LCS Seaframe Delivery				1Q Ship1	1Q Ship 3	1Q Ship 2 1Q Ship 4		

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 24 of 32)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME PE 0603581N - Littoral Combat Ship			PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction			
COST (\$ in Millions)	FY 2004	2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	228.455	249.236	36.738	36.732	7.076	0.000	0.000
RDT&E Articles Qty								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project funds the detail design and construction of two of the LCS Flight 0 ships, funded in FY05 and FY06. This project also funds Outfitting & Post Delivery.								

R-1 SHOPPING LIST - Item No.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4	PROGRAM ELEMENT NUMBER AND NAME PE 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	212.455	240.530	
RDT&E Articles Quantity				
<p>Detail design and construction of first two ships in FY 05 and FY06. Continue detailed production planning for LCS to include: development of purchase specifications/drawings for all the significant equipment, begin initial competition and selection of components, issue contracts and begin production of components. Begin logistics support analysis and develop crew training. Design fixtures and jigs to facilitate construction. Begin production design for early work packages to include work instructions, schedules, work locations, material list, tooling, facilities and manpower. requirements. Begin construction of LCS A1 in FY05 and LCS B1 in FY06.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost			8.706	36.738
RDT&E Articles Quantity				
<p>Post Delivery funding is required for Developmental Testing, Combat System Ship Qualification Test (CSSQT), test and trials, Mission Package interface testing, correction of deficiencies, and Live Fire Test & Evaluation (LFT&E). Outfitting funding is required for spare parts, medical and dental supplies, pre-commission crew support, and crew move aboard.</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost		16.000		
RDT&E Articles Quantity				
<p>Fund procurement of long lead items in advance of contract award.</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603581N - Littoral Combat Ship (LCS)	PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction																																																				
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 10%;">FY 2004</th> <th style="text-align: right; width: 10%;">FY 2005</th> <th style="text-align: right; width: 10%;">FY 2006</th> <th style="text-align: right; width: 10%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>(U) Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">107.678</td> <td style="text-align: right;">214.506</td> <td style="text-align: right;">106.994</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">228.455</td> <td style="text-align: right;">249.236</td> <td style="text-align: right;">36.738</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">120.777</td> <td style="text-align: right; border-top: 1px solid black;">34.730</td> <td style="text-align: right; border-top: 1px solid black;">-70.256</td> </tr> <tr> <td colspan="5" style="padding-top: 20px;">(U) Summary of Adjustments</td> </tr> <tr> <td> Programmatic adjustments</td> <td></td> <td style="text-align: right;">15.952</td> <td style="text-align: right;">34.730</td> <td style="text-align: right;">-70.256</td> </tr> <tr> <td> Congressional Reductions</td> <td></td> <td style="text-align: right;">-2.175</td> <td></td> <td></td> </tr> <tr> <td> Fully Fund First Flight 0 Ship</td> <td></td> <td style="text-align: right;">107.000</td> <td></td> <td></td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">120.777</td> <td style="text-align: right; border-top: 1px solid black;">34.730</td> <td style="text-align: right; border-top: 1px solid black;">-70.256</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 20px;">Not Applicable</p> <p style="margin-top: 20px;">Technical:</p> <p style="margin-left: 20px;">Not Applicable</p>						FY 2004	FY 2005	FY 2006	FY 2007	(U) Funding:					FY05 President's Budget	0.000	107.678	214.506	106.994	FY06 President's Budget	0.000	228.455	249.236	36.738	Total Adjustments	0.000	120.777	34.730	-70.256	(U) Summary of Adjustments					Programmatic adjustments		15.952	34.730	-70.256	Congressional Reductions		-2.175			Fully Fund First Flight 0 Ship		107.000			Total Adjustments	0.000	120.777	34.730	-70.256
	FY 2004	FY 2005	FY 2006	FY 2007																																																		
(U) Funding:																																																						
FY05 President's Budget	0.000	107.678	214.506	106.994																																																		
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R-1 SHOPPING LIST - Item No. 53

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME PE 0603581N - Littoral Combat Ship (LCS)			PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction			

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
BLI 160000 (OPN)	0.000	0.000	36.811	108.376	221.455	748.826	738.664	813.653	CONT	CONT
BLI 212700 (SCN)	0.000	0.000	0.000	542.442	779.660	1127.203	1112.312	1110.316		
BLI 422100 (WPN)	0.000	0.000	0.000	0.000	0.000	48.315	48.367	59.259		

E. ACQUISITION STRATEGY:

(U) The LCS acquisition strategy encompasses multiple phases: Phases I and II are Concept Refinement and Technology Development, consisting of Preliminary Design, Final Design and Detail Design and Construction for Flight 0 ships. A parallel three phase approach is planned for Flight 1 ships. - Preliminary System Design, - Final System Design and - Detail Design and Construction.

F. MAJOR PERFORMERS:

General Dynamics - Bath Iron Works
Lockheed Martin

R-1 SHOPPING LIST - Item No. 53

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDTE, N / BA-4			PE 0603581N - Littoral Combat Ship (LCS)			4018 - Littoral Combat Ship Construction								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
LCS 1 Construction	Comp	Lockheed Martin	0.000	0.000	N/A	212.455	2QFY05					Continuing	Continuing	
Long Lead Material LCS 3	Comp	General Dynamics				16.000						Continuing	Continuing	
LCS 3 Construction		General Dynamics						240.530	2QFY06			Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Product Development			0.000	0.000		228.455		240.530		0.000		0.000	468.985	
Remarks:														
Initial Outfitting & Post Delivery	Various	TBD						8.706	4QFY06	36.738	2QFY07	Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
			0.000	0.000		0.000		8.706		36.738		0.000	45.444	
Remarks:														

R-1 SHOPPING LIST - Item No. 53

UNCLASSIFIED

Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 29 of 32)

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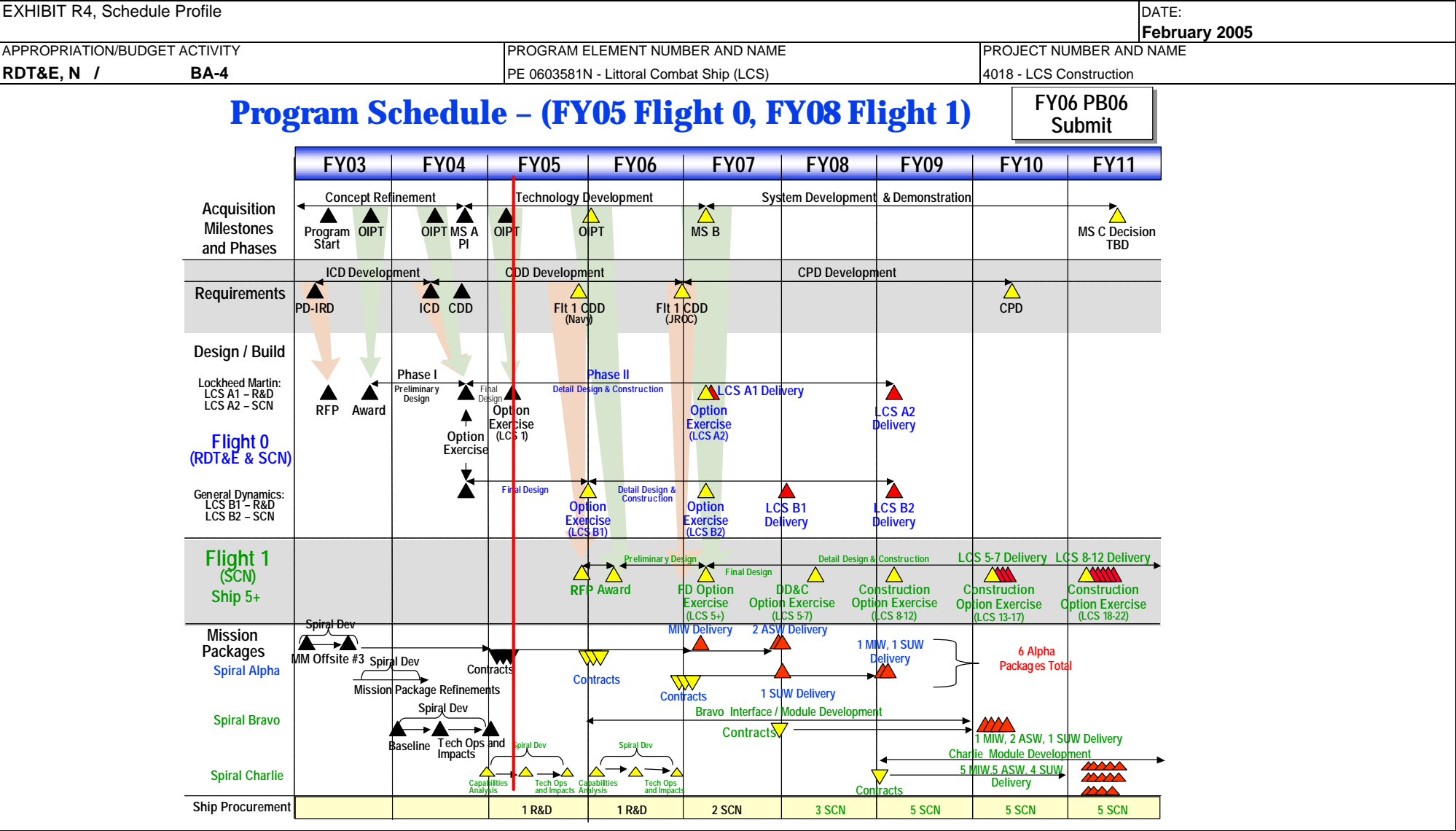
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship (LCS)			PROJECT NUMBER AND NAME 4018 - Littoral Combat Ship Construction								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Subtotal T&E														
Remarks:														
Government Engineering Support														
Government Engineering Support														
Program Management Support														
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management														
Remarks:														
Total Cost			0.000	0.000		228.455		249.236		36.738		Continuing	Continuing	
Remarks:														

R-1 SHOPPING LIST - Item No. 53

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CLASSIFICATION:



R-1 SHOPPING LIST - Item No.

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT PE 0603581N - Littoral Combat Ship				PROJECT NUMBER AND NAME 4018 - LCS Construction			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Preliminary Design (Flight 0)	1Q-3Q							
Final Design (Flight 0)	3Q-4Q	1Q-2Q						
Detail Design and Construction (Flight 0)		2Q-4Q	1Q-4Q	1Q-2Q				
Mission System Development & Platform Exp	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
			2Q-4Q	1Q				
Preliminary Design (Flight 1)				2Q-4Q	1Q-2Q			
Final Design (Flight 1)					2Q-4Q			
Detail Design and Construction (Flight 1) - SCN Funded						1Q-4Q		
	3Q							
Milestone A				2Q				
Milestone B								
Milestone C								1Q
				2Q				
First Ship Delivery (Flight 0)								
Ship 2 Delivery (Flight 0) - SCN Funded					1Q	2Q		
Ship 3 Delivery (Flight 0)								
Ship 4 Delivery (Flight 0) - SCN Funded						2Q		
Lead Ship Delivery (Flight 1) - SCN Funded							1Q	
NOTE:	4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
Developmental Testing		2Q	2Q	2Q-4Q	2Q-4Q	1Q-4Q	1Q	
Operational Testing		2Q	2Q	2Q-4Q	2Q-4Q		2Q-4Q	
Engineering Events - TBD								

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE:		
						February 2005		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4				R-1 ITEM NOMENCLATURE Combat Systems Integration/Strike Force Interoperability 0603582N				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	\$102.456	\$99.099	\$76.975	\$65.436	\$54.797	\$53.573	\$33.328	\$32.904
0164/Combat Systems Integ/Strike Force Interoperability	\$97.100	\$74.300	\$76.975	\$65.436	\$54.797	\$53.573	\$33.328	\$32.904
9356/Advanced Laser Diode Array	\$2.054	\$1.485	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
9357/Laser Induced Plasma Channeling	\$3.284	\$12.487	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
9527/Application of Novel Laser Systems on Optical Seekers	\$0.000	\$0.991	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
9529/Context Adaptable Autonomous & Remote Unmanned System Operation (CARUSO)	\$0.000	\$2.476	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
9530/High Energy Laser Application Effects	\$0.000	\$1.684	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
9531/Laser Augmented Ship Self Defense	\$0.000	\$1.684	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
9532/Unexploded Ordnance Detection Airborne Ground Penetrating Radar	\$0.000	\$3.962	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project 0164: Combat Systems Integration/Strike Force Interoperability: CNO MSG DTG 021648Z May 1998 assigned COMNAVSEASYSCOM (SEA 06) central responsibility for interoperability; directing the development of policy and architecture for Strike Force warfare systems engineering, implementation of a common warfare systems engineering process. Furthermore, SEA 06 provides top level direction and execution for certification and assessment which support capability and quality for ships and submarines. SEA 06 has responded with processes and tools to include: establishment of a force-level warfare systems engineering process, stewardship of the introduction of C5I modernization and improvement into the Fleet Response Plan (FRP) configuration management and certification process per FFC MSG DTG 032037Z May 04, and force-level interoperability assessment using the Distributed Engineering Plant (DEP) land-based testing tool. This project funds the core elements required to execute FFC direction. This project funds: Strike Force (SF) requirements engineering and analysis. SF configuration management through the Fleet Response Plan (FRP), shore based testing and Platform Integration Testing (PIT) certification of operational computer systems in a test environment similar to their ultimate shipboard operational environment, and Interoperability Assessments (IA) which is a prerequisite for operational Certification of the Strike Force configuration prior to deployment. Force Certification of deploying Strike Force configurations is accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which provides operational configurations for all Naval combat systems located at multiple (15) Navy & Industry land-based sites located across the country and connected via ATM networking technology. The DEP provides the only opportunity for comprehensive interoperability testing of combat system and C4I configuration items prior to shipboard delivery for operational use in surface combatant platforms and battle group units. It is a Fleet Forces Command requirement that all Strike Forces undergo Interoperability Assessments (IA) in the DEP prior to deployment. Further, the DEP provides the mechanism to support the Navy's participation in the Joint Distributed Engineering Plant (JDEP) as well as the coalition forces through the Combined Forces Battle Laboratories (CFBL) to allow for assessments of both Joint and Coalition interoperability. Through the implementation of the Fleet Response Plan (FRP), the Navy has made considerable improvements in Naval Force Interoperability. Interoperability Assessemnts (IA) testing in the Distributed Engineering Plant, has identified recurring interoperability problems, which have then been prioritized into 21 main categories by Strike Group Commanders and their staffs. SEA 06 has prioritized possible interoperability fixes and coordinated with combat system managers to identify the fix path to resolve critical interoperability problems for near term fielding as an interim path to achieving the Navy's combat systems way ahead. DEPSECDEF Guidance issued in October 2001 directs the Services to resolve interoperability problems in legacy combat systems by FY08 and develop metrics to evaluate operational improvements associated to those corrections. In accordance with this direction, the Navy is implementing a plan to fund Common Network Interface (CNI) upgrades to existing legacy COTS hardware on Navy LHAs and develop common interoperable software compliant with the Navy's OA standards to integrate the data from ship's sensors, external links, and FORCEnet sources into an operational picture for the warfighter and an output to the legacy weapons control system.								

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 1 of 13)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4				R-1 ITEM NOMENCLATURE Combat Systems Integration/Strike Force Interoperability 0603582N				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	\$102.456	\$99.099	\$76.975	\$65.436	\$54.797	\$53.573	\$33.328	\$32.904

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION (Continued):

Project 0164 Combat Systems Integration/Strike Force Interoperability:

Additionally, this project funds Navy's implementation of improvements to specific combat systems as required to correct interoperability problems as necessary to achieve a Single Integrated Air Picture (SIAP). The Joint community has established guidelines for problem corrections, to be addressed in incremental Blocks designed to improve the SIAP. A SIAP is the product of fused, near-real-time and real-time data from multiple sensors to allow development of common, continuous, and unambiguous tracks of all airborne objects in the surveillance area. This effort is funded in PE 0603879N in FY05 and beyond.

Project 9356/9357/9527/9530/9531/9532: Directed Energy related efforts:
These Congressional adds fund directed energy and electric weapons development efforts.

Project 9529: Context Adaptable Autonomous & Remote Unmanned System Operation:
This Congressional add funds research of Advanced Undersea Vehicle (UUV) human/system interaction technologies.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603582N CSI/SFI	PROJECT NUMBER AND NAME 0164/9356/9357/9527/9529/9530/9531/9532 CSI/SFI		
B. Accomplishments/Planned Program				
FRP	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	7.541	6.787	5.022	5.201
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
FY05: Continue execution of the FRP for all Strike Groups in the deployment cycle, including: SFAO efforts, SG Change Control Process, SG Capabilities and Limitations Report and Engineering assessments. Continue configuration management for all strike groups. Continue development of AMPS and Electronic Configuration Control Board (ECCB). In any given year, 25 + Strike Groups are being evaluated in some phase of the Fleet Response Plan (FRP), Over 27 Capabilities and Limitations Documents are delivered, and over 12000 configuration change requests are processed. FY06-11: AMPS and ECCB transition to OMN				
Platform Certification	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	11.508	12.441	9.459	9.658
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
FY 04: Conducted Platform Certification Integration Testing (PIT) of Advanced Combat Direction System (ACDS) Block-0, level 10.26.X, ACDS Block-1 2.1.9, Combat Direction System (CDS) level 12.X/13.X in CV/CVN, LSD, and LHD ship classes, SSDS MK-2, Mod 0, and Command and Control Processor (C2P) upgrade. Continued planning for out-year Platform Interoperability Testing (PIT) testing. FY05-07 plans include PIT testing of Ship Self Defense System (SSDS) MK-2 Mods 1-2 combat systems and associated elements for CVN/LHD/LHA/LPD ship classes and Test Bed Validation. Continue planning for out-year Platform Integration Testing (PIT) testing to include CVN 77, LCS, LPD 17, CVN 21, Open Architecture combat systems as well as integration of new combat system capabilities.				
Strike Force Interoperability Certification	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	11.783	8.600	12.007	8.936
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
FY04: Conducted DEP testing and data analysis of complex computer program configurations necessary to characterize Strike Force. Interoperability of deploying forces. Carrier Strike Group (CSG) Force Interoperability testing (FIT) in FY 04 supported USS JOHN F. KENNEDY CSG; USS ABRAHAM LINCOLN CSG; USS JOHN C. STENNIS CSG; USS HARRY S. TRUMAN CSG; USS NIMITZ CSG; USS THEODORE ROOSEVELT CSG; USS GEORGE WASHINGTON CSG. Conducted Interoperability Systems Engineering Tests (ISETs) for root cause determination of key interoperability problems and in support of development of new force level combat system capability. In FY05, plans include conduct Interoperability Assessment (IA) testing for USS JOHN C.. STENNIS CSG'S FY07 deployment; USS EISENHOWER CSG; USS RONALD REAGAN CSG; and USS VINSON CSG's FY07 deployment. FY06-07 plans include Interoperability Assessments (IAs) for FY08 & 09 deployers as well as collaborative system testing of strike force capabilities.				
DEP Engineering and Operations	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	10.365	10.866	7.047	6.229
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
Performs systems engineering, development, test, and assessment of developmental and deploying complex combat system baselines through the use of the Distributed Engineering Plant (DEP). Organize test requirements and develop test procedures assessing root-cause interoperability issues associated with complex computer program configurations for deploying strike force groups. Conduct systems engineering to identify simulation/stimulation requirements necessary to achieve required fidelity for DEP testing at Navy laboratory sites through specific System Engineering Event (SEE). In FY04, completed integration of the Open Architecture Test Facility (OATF) and Lockheed Martin. Evaluate network requirements for distributed test events, work with other Service R&D laboratories to identify system and test requirements supporting evaluation of joint system interoperability and the development of open system architecture baselines. Funds critical technical activity in force interoperability necessary to support all user communities of this important land-based test capability. i.e. acquisition; fleet; and industry. FY05: Integrate the Ship Aviation Integration Lab (NAVAIR PAX). FY06-FY07: DEP Engineering requirements to support testing retained in RDTEN and Operations requirements transition to OMN.				

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
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B. Accomplishments/Planned Program (Cont.)				
Interoperability Fixes	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	12.944	1.721	1.976	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
<p>There are currently 890 unresolved unique interoperability problems identified through Strike Force Interop. Testing (SFIT), Deploying Group System Interop. Testing (DGSIT), Navy Center for Tactical System Interop. (NCTSI), SSA, TEMP 801 testing, OIF, CLF/CPF lessons learned, and CEC Opeval that have been divided into 21 categories prioritized by the Fleet. Funding is dedicated to develop and implement interoperability fixes to combat systems, and to validate and certify completed fixes at the platform and Strike Force level through land-based testing. In accordance with DEPSECDEF Guidance of Oct 2001, interoperability problem corrections are evaluated according to their ability to improve the operational performance of deploying Strike Forces. For FY 04 deployers: USS JOHN F KENNEDY Strike Force received 130 fixes that resolve Fleet's top issues. Systems impacted in FY04 include C2P, ACDS Block 0, ACDS Block 1, FFG CDS, E2C, SGS/AC and AWS 6.3. An additional 26 fixes will be available to field in FY05 that capture system level interoperability fixes, lessons learned from Operation Iraqi Freedom, and coordinated multi-system solutions of strike force interoperability problems in CEC 2.1, SSDS, E2C, AWS 6.1.7, SGS/AC and C2P/CDLMS. FY2005 funds allow for completion of the FY2004 package with fielding available beginning May 2005. FY2006: funding supports analysis and assessment methodology to identify engineering changes required to correct interoperability at the system design phase.</p>				
JDEP	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	4.703	4.876	4.960	4.950
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
<p>Funds Navy participation in Joint Distributed Engineering Plant (JDEP) and related land-based test events and systems engineering activities. The Defense Planning Guidance (DPG) updated for FY 2002-2007 states: the JDEP program was established as a DoD-wide effort to link existing service and joint combat system engineering and test sites. The JDEP is the lead infrastructure used for the evaluation of coordinated, joint engineering events, which include the validation of next-generation algorithms implementing the Single Integrated Air Picture (SIAP). Funds support Navy participation in JDEP approved test events and test bed improvements needed to conduct testing. FY04 included modeling & simulation improvements and JCHE Phase I. FY05 Events include Tri-Service Distributed Test Event, CAAD Phase IV, JCHE Phase II, Sea-Based BMD. FY06 JDEP to support initiatives in line with OSD Joint Testing Roadmap signed 12 November 2004.</p>				
OA Automated Test and Re-Test	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	N/A	N/A	8.500	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
<p>Open Architecture Automated Test and Re-Test Capability: Funds added to program to support software engineering upgrades to the Distributed Engineering Plant (DEP) Laboratories to enable rapid test and re-test of Open Architecture software modules and associated improvements. Funds are needed to permit the testing of the rapid and affordable introduction of new capabilities into future combat systems.</p>				
REAGAN Strike Force Interoperability	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	7.219	N/A	0.000	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
<p>The USS RONALD REAGAN (CVN 76), its associated combat system, and other Strike Group (SG) upgrades, is a complex convergence of multiple platforms, systems, and sub-systems. FY04 funds were focused on completing phases II and III of a 4 phase REAGAN Strike Group Team Strategy that supports (FRP). The phase II events were designed to characterize the performance of SPQ-9B and BFTT, advanced Detect to Engage (DTE), Strike Group I/O, Link 4A/11/16, Composite Surface Tracking, and Low/Slow Flyer. Phase III events were designed to demonstrate the performance of Advance DTE, Link 4A/11/16, complete missile firings, Strike Group Track Management and SG level reporting/weapons coordination. These combined efforts are critical to finalizing the delivery of a fully mission capable REAGAN Strike Group that is interoperable with the force. Without them critical Fleet Response Plan (FRP) milestones will not be possible, resulting in a National asset deploying without a thorough and accurate assessment of I/O performance.</p>				

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APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603582N CSI/SFI	PROJECT NUMBER AND NAME 0164/9356/9357/9527/9529/9530/9531/9532 CSI/SFI

B. Accomplishments/Planned Program (Cont.)

SF Requirements Engineering and Analysis	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.500	2.048	2.272	2.917
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

Completed documentation of phase I of Strike Force Interoperability requirements documentation. In FY05, intent is to develop additional scenarios to reflect updated Strike Force Interoperability engineering requirements necessary to respond to the Fleet Response Plan (FRP). Specifically, development of multi-mission strike scenarios and evaluation of interoperability performance by establishment of levels of operational performance and systems operability. Development of these standards will be essential to the evaluation of emerging combat system capabilities, such as Open Architecture. Continue to develop data sets that can be used to apply to quantifiable and measurable Strike

CNI/OA Transformation Roadmap	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	22.213	25.000	25.732	27.545
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

Funds are for SBIR Phase III efforts to develop Common Network Interface Capabilities for theater and air missile defense.

The Common Network Interface (CNI) is a Commercial Off-The-Shelf (COTS) open interface system designed to modernize C4I and Combat Systems (C5I) on ships not programmed to receive Open Architecture (OA) upgrades. CNI is an Open Architectural Situational Awareness "machine" providing the Joint Track Manager/OATM linkage to the ACDS Block 0 in LHA/LHD. CNI upgrades the existing legacy COTS hardware and common interoperable software compliant with the Navy's OA standards to integrate the data from ship's sensors, external links, and FORCENet sources into an operational picture for the warfighter and an output to the legacy weapons control system. These operational capability improvements are achieved in a cost effective manner by using the spiral development, "build-test-build" programmatic and processes pioneered by the Acoustics Rapid COTS Insertion (ARCI) and Advanced Processing Build (APB) processes which minimizes legacy system/subsystem technical disruption. CNI ensures the upgraded ships stay current with Navy Open Architecture and Joint interoperability requirements.

Navy SIAP Improvements	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.612	0.000	0.000	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

Navy implementation of combat system corrections as needed to affect a Single Integrated Air Picture (SIAP). Combat systems includes AEGIS.

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APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603582N CSI/SFI	PROJECT NUMBER AND NAME 0164/9356/9357/9527/9529/9530/9531/9532 CSI/SFI

B. Accomplishments/Planned Program (Cont.)

ALDA (Advanced Laser Diode Arrays):	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.054	1.485	0.000	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

These funds were provided by Congressional Plus Up.

ALDA (Advanced Laser Diode Arrays): Proj #9356 FY04 (\$2,054K) The goal of the ALDA effort is the development of 100% Duty Cycle Diode packaging with advanced cooling, and its transition to automated assembly. Previous efforts addressed the cooling of pulsed large area laser diode pump arrays using conventional bulk flowing liquid technology. 100% Duty Cycle Diode arrays are required for all DoD DPSS HEL systems in the near (3-5 year) future. In FY05 (\$1,485K) **ALDA** funding was provided to increase the demonstrated percentage of the Duty Cycle Diode packaging.

LIPC (Laser Induced Plasma Channeling)	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	3.284	12.478	0.000	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

These funds were provided by Congressional Plus Up.

Proj #9357 FY04 (\$3,284K) Funds were used for engineering and demonstration of miniature lasers to determine the maximum extended range and resultant effects associated with this laser guided energy. In FY 05 (\$12,478K) LIPC funding was provided to increase the range of LIPC as demonstrated in FY04.

Appl. of Novel Laser Sys. on Optical Seeker	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.991	0.000	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

These funds were provided by Congressional Plus Up.

Proj #9527 FY 05 (\$991K) funding was provided to address the effects of ultra-short laser pulses on components of imaging (focal plane) and non-imaging (reticule) based optical seekers.

High Energy Laser Application Effects	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	1.684	0.000	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A

These funds were provided by Congressional Plus Up.

Proj #9530 FY05 (\$1,684K) funding provides the ability to obtain crucial data for defining laser weapon effects at defined wavelengths and secondarily, provides data for solving critical problems encountered in laser beam delivery in ship manufacturing applications.

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B. Accomplishments/Planned Program (Cont.)																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Laser Augmented Ship Self Defense</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>1.684</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>These funds were provided by Congressional Plus Up. Proj #9531 FY05 (\$1,684K) funding will provide the analyses associated with laser charring of composite radomes and the resultant decrease of the signal-to-noise ratio that would cause the incoming missile to break lock and decrease its Pk. Funds are required to plan, accomplish, and analyze full-scale static tests using an existing to perform laser-induced charring on actual anti-ship missiles.</p> </div>					Laser Augmented Ship Self Defense	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	1.684	0.000	0.000	RDT&E Articles Quantity	N/A	N/A	N/A	N/A
Laser Augmented Ship Self Defense	FY 04	FY 05	FY 06	FY 07															
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RDT&E Articles Quantity	N/A	N/A	N/A	N/A															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Unexploded Ordnance Detection Airborne Ground Penetrating Radar</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>3.962</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>These funds were provided by Congressional Plus Up. Proj #9532 FY05 (\$3,962K) funding is to perform the environmental impact studies required to clear unexploded ordnance.</p> </div>					Unexploded Ordnance Detection Airborne Ground Penetrating Radar	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	3.962	0.000	0.000	RDT&E Articles Quantity	N/A	N/A	N/A	N/A
Unexploded Ordnance Detection Airborne Ground Penetrating Radar	FY 04	FY 05	FY 06	FY 07															
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RDT&E Articles Quantity	N/A	N/A	N/A	N/A															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Context Adaptable Autonomous & Remote Unmanned System Operation (CARUSO)</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>2.476</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>These funds were provided by Congressional Plus Up. Proj #9529 (\$2,476K) Funds to provide Advanced Undersea Unmanned Vehicle (UUV) human/system interaction technology research; development of common human-centered approaches and solutions for Unmanned Vehicle (UV) control, data retrieval, and information extraction/dissemination; UV human/system interaction empirical test and evaluation. This effort, entitled CARUSO will operate a program designed to systematically address and resolve the above issues in an integrated manner.</p> </div>					Context Adaptable Autonomous & Remote Unmanned System Operation (CARUSO)	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	2.476	0.000	0.000	RDT&E Articles Quantity	N/A	N/A	N/A	N/A
Context Adaptable Autonomous & Remote Unmanned System Operation (CARUSO)	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	2.476	0.000	0.000															
RDT&E Articles Quantity	N/A	N/A	N/A	N/A															

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603582N CSI/SFI	PROJECT NUMBER AND NAME 0164/9356/9357/9527/9529/9530/9531/9532 CSI/SFI																																																				
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 10%;">FY 2004</th> <th style="text-align: right; width: 10%;">FY 2005</th> <th style="text-align: right; width: 10%;">FY 2006</th> <th style="text-align: right; width: 10%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget: (FY 05 Pres Controls)</td> <td style="text-align: right;">97.969</td> <td style="text-align: right;">80.840</td> <td style="text-align: right;">40.396</td> <td style="text-align: right;">37.330</td> </tr> <tr> <td>Current BES/FY06/07 President's Budget:(FY06/07 President's Controls)</td> <td style="text-align: right; border-top: 1px solid black;">102.456</td> <td style="text-align: right; border-top: 1px solid black;">99.099</td> <td style="text-align: right; border-top: 1px solid black;">76.975</td> <td style="text-align: right; border-top: 1px solid black;">65.436</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">4.487</td> <td style="text-align: right; border-top: 1px solid black;">18.259</td> <td style="text-align: right; border-top: 1px solid black;">36.579</td> <td style="text-align: right; border-top: 1px solid black;">28.106</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td style="padding-left: 20px;">SBIR/STTR Transfer</td> <td style="text-align: right;">1.683</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Undistributed</td> <td style="text-align: right;">0.211</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Programmatic Adjustments</td> <td style="text-align: right;">2.593</td> <td style="text-align: right;">18.259</td> <td style="text-align: right;">36.579</td> <td style="text-align: right;">28.106</td> </tr> <tr> <td style="padding-top: 10px;">Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">4.487</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">18.259</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">36.579</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">28.106</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule: See R4/R4A Schedule.</p> <p style="margin-top: 40px;">Technical:</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					Previous President's Budget: (FY 05 Pres Controls)	97.969	80.840	40.396	37.330	Current BES/FY06/07 President's Budget:(FY06/07 President's Controls)	102.456	99.099	76.975	65.436	Total Adjustments	4.487	18.259	36.579	28.106	Summary of Adjustments					SBIR/STTR Transfer	1.683				Congressional Undistributed	0.211				Programmatic Adjustments	2.593	18.259	36.579	28.106	Subtotal	4.487	18.259	36.579	28.106
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R-1 SHOPPING LIST - Item No. 54

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603582N CSI/SFI	PROJECT NUMBER AND NAME 0164/9356/9357/9527/9529/9530/9531/9532 CSI/SFI

D. OTHER PROGRAM FUNDING SUMMARY:

Related RDT&E: Computer programs developed under these programs are tested in their integrated configuration.

PE 0204571N (Consolidated Training Systems Development)
 PE 0205620N (Surface ASW Combat System Technology)
 PE 0603382N (Advanced Combat System Technology)
 PE 0603755N (Ship Self Defense Dem/Val)
 PE 0603658N (Cooperative Engagement Capability)
 PE 0604307N (AEGIS Combat Systems Engineering)
 PE 0604755N (Ship Self Defense - EMD)
 PE 0604518N (CIC Conversion/Common Command and Decision)
 PE 0603879N (Single Integrated Air Picture)
 PE 0605853N (CHENG)
 PE 0603925N Directed Energy and Electric Weapon Systems

Related Procurement:
 OPN 296000 (ICSTF/DEP: Integrated Combat System Test Facility/Distributed Engineering Plant)

FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
\$8.6	\$4.6	\$4.4	\$4.5	\$4.7	\$4.8	\$4.9	\$5.1

E. ACQUISITION STRATEGY: Not Applicable

F. MAJOR PERFORMERS:

Naval Surface Warfare Center, Port Hueneme, CA - Platform Integration Integration Testing/Strike Force Interoperability effort.

Naval Surface Warfare Center, Dahlgren Division, VA - Distributed Engineering Plant (DEP), Strike Force Interoperability Requirements (SFIR), and Strike Force Interoperability Operational Advisory Group (SFI OAG) efforts.

General Dynamics - Advanced Information Systems (GD-AIS) Digital Systems Resources, Inc. (DSR), Fair Lakes, VA- Prime contractor for Common Network Interface (CNI).

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Exhibit R-3 Cost Analysis (page 1)							DATE: February 2005							
APPROPRIATION/BUDGET ACTIVITY			PROJECT NUMBER AND NAME											
RDT&E,N/BA-4			0603582N CSI/SFI											
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Platform Certification	WR/RC	NSWC PHD	6.909	8.600	10/03	7.930	10/04	7.309	10/05	7.100	10/06	CONT.	CONT.	
Platform Certification	WR/RC	NSWC DD										CONT.	CONT.	
Platform Certification	WR/RC	VARIOUS	1.741	1.914	10/03	1.930	10/04	1.166	10/05	2.060	10/06	CONT.	CONT.	
SF Interoperabilitiy Requirements	WR/RC	NSWC	1.686	0.500	10/03	0.637		0.638		0.689				
SF Interoperability Requirements	WR/RC	VARIOUS	1.513			1.500		1.662		1.520				
FRP	WR/RC	NSWC PHD	2.520	5.498	10/03	2.641	10/04	2.792	10/05	2.670	10/06	CONT.	CONT.	
FRP	WR/RC	NSWC DD	2.748			2.772		1.592		1.343		CONT.	CONT.	
FRP	WR/RC/PD	VARIOUS	1.380	1.737	10/03	1.666	10/04	0.000	10/05	0.000	10/06	CONT.	CONT.	
JDEP	WR/RC	NSWC DD	4.400	3.200	10/03	3.331	10/04	3.295	10/05	3.280	10/06	CONT.	CONT.	
JDEP	WR/RC	VARIOUS	0.700	1.503	10/03	1.545	10/04	1.665	10/05	1.670	10/06	CONT.	CONT.	
Navy Open Architecture	VARIOUS	VARIOUS	0.000	0.000		0.000		8.500	10/05	0.000		CONT.	CONT.	
REAGAN SG	WR/RC	VARIOUS	0.000	5.004	09/04									
REAGAN SG	VARIOUS	VARIOUS	0.000	1.377	09/04									
DEP Engineering and Operations	WR/RC	NSWC DD	10.325	7.909	10/03	8.909	10/04	6.111	10/05	6.229	10/06	CONT.	CONT.	
DEP Engineering and Operations	WR/RC/PD	VARIOUS	1.395	2.325	10/03	1.657	10/04	0.000	10/05	0.000	10/06	CONT.	CONT.	
Strike Force Interoperability Cert	WR/RC	NSWC DD	1.686	5.707	10/03	2.350	10/04	11.096	10/05	6.985	10/06	CONT.	CONT.	
Strike Force Interoperability Cert	WR/RC/PD	VARIOUS	1.513	3.804	10/03	1.999	10/04	0.000	10/05	0.000	10/06	CONT.	CONT.	
Interoperability Fixes	WR/RC	NSWC DD	N/A	8.449	10/03	0.795	10/04	1.500	10/05	0.000	10/06	CONT.	CONT.	
Interoperability Fixes	WR/RC	VARIOUS	N/A	0.000		0.000		0.000		0.000		CONT.	CONT.	
Interoperability Fixes	WR/RC	NSWC DD-CDSA D	N/A	1.000	10/03	0.500	10/04	0.000	10/05	0.000	10/06	CONT.	CONT.	
Interoperability Fixes	WR/RC	NSWC DD	N/A	1.250	10/03	0.500	10/04		10/05	0.000	10/06	CONT.	CONT.	
CNI/OA Transformation Roadmap	WR/RC	NSWC DD	0.000	0.000		4.000	10/04					CONT.	CONT.	
CNI/OA Transformation Roadmap	VARIOUS	VARIOUS	15.230	24.221	11/03	21.000	11/04	25.732	11/05	27.545	11/06	CONT.	CONT.	
Contract Engineering Support	VARIOUS	VARIOUS	5.119	3.311	11/03	5.327	11/04	2.567	11/05	2.995	11/06	CONT.	CONT.	
Contract Program Mgt Support	VARIOUS	VARIOUS	1.109	1.167	11/03	1.100	11/04	1.100	11/05	1.100	11/06	CONT.	CONT.	
Single Integrated Air Picture	VARIOUS	VARIOUS	0.000	1.662	12/03	0.000				0.000		CONT.	CONT.	
HEL Activities	VARIOUS	VARIOUS	1.567	4.380	03/04	5.057	03/05			0.000		CONT.	CONT.	
HEL Contracts	VARIOUS	VARIOUS	1.674	7.688	03/04	19.227	03/05			0.000		CONT.	CONT.	
CARUSO	WR/RC	VARIOUS	0.000	0.000		2.476	10/04							
USMC	VARIOUS	VARIOUS	0.489	0.000		0.000				0.000		CONT.	CONT.	
Travel		NAVSEA TRAVEL	0.200	0.250	09/04	0.250	09/05	0.250	09/06	0.250	09/07	CONT.	CONT.	
												CONT.	CONT.	
Subtotal Product Development			63.904	102.456		99.099		76.975		65.436		CONT.	CONT.	
Remarks:														

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Exhibit R-4a, Schedule Detail				DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY				PROJECT NUMBER AND NAME					
RDT&E,N/BA-4				0164/9356/9357/9527/9529/9530/9531/9532 CSI/SFI					
Schedule Profile		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY2009	FY2010	FY2011
	ABRAHAM LINCOLN FIT	2/3Q							
	GEORGE WASHINGTON FIT	4Q							
	HARRY S. TRUMAN FIT	2/3Q							
	NIMITZ FIT	3Q							
	THEODORE ROOSEVELT FIT	4Q							
	ENTERPRISE FIT	4Q							
	SEE 05-01		1Q						
	SEE 05-02		1Q						
	SEE 05-03		2Q						
	SEE 05-04		3Q						
	SEE 05-05		3Q						
	SEE 05-06		4Q						
	LHA 1/5 PIT		4Q	1Q					
	FFG 7 PIT	1Q/2Q/3Q							
	CVN 76 PIT	1/2/3/4Q	1Q/2Q		1Q/2Q				
	LSD 41/49 PIT	2Q/3Q	3Q/4Q						
	LPD 17 PIT	3Q	1Q/3Q	2Q/3Q					
	FFG 7 LEVEL 13 PIT	1Q/2Q							
	FFG 7 LEVEL 12 PIT	2Q/3Q	2Q/3Q						
	LHD 2/4/5 PIT	2Q/3Q		3Q/4Q					
	SSDS MK2 MOD1 PIT(CVN 68)	3Q/4Q	1Q						
	LHA 4 PIT		2Q/3Q	1Q/2Q					
	CVN 74 PIT		1/2/3/4Q						
	CV67 PIT		4Q						
	CV63, CVN 65/73 PIT	3Q/4Q							
	CVN 71/72 PIT			2Q/3Q					
	SSDS MK2 MOD 1 PIT (CVN 69)		1Q/2Q/3Q						
	LHD 7 PIT	1Q		4Q					
	LHD 3/6 PIT		3Q/4Q						
	CVN 75 SSDS MK2 MOD 1A PIT		4Q	1Q					
	CVN 70 PIT	3Q							
	CVN 68 PIT	3Q		1Q/2Q					
	CVN 77 PIT				1-4Q	1-3Q			
	LHD 8 PIT			3Q/4Q	4Q	1Q/2Q			
	NAVY JOINT TEST	1Q/4Q	4Q						

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EXHIBIT R4, Schedule Profile

DATE:

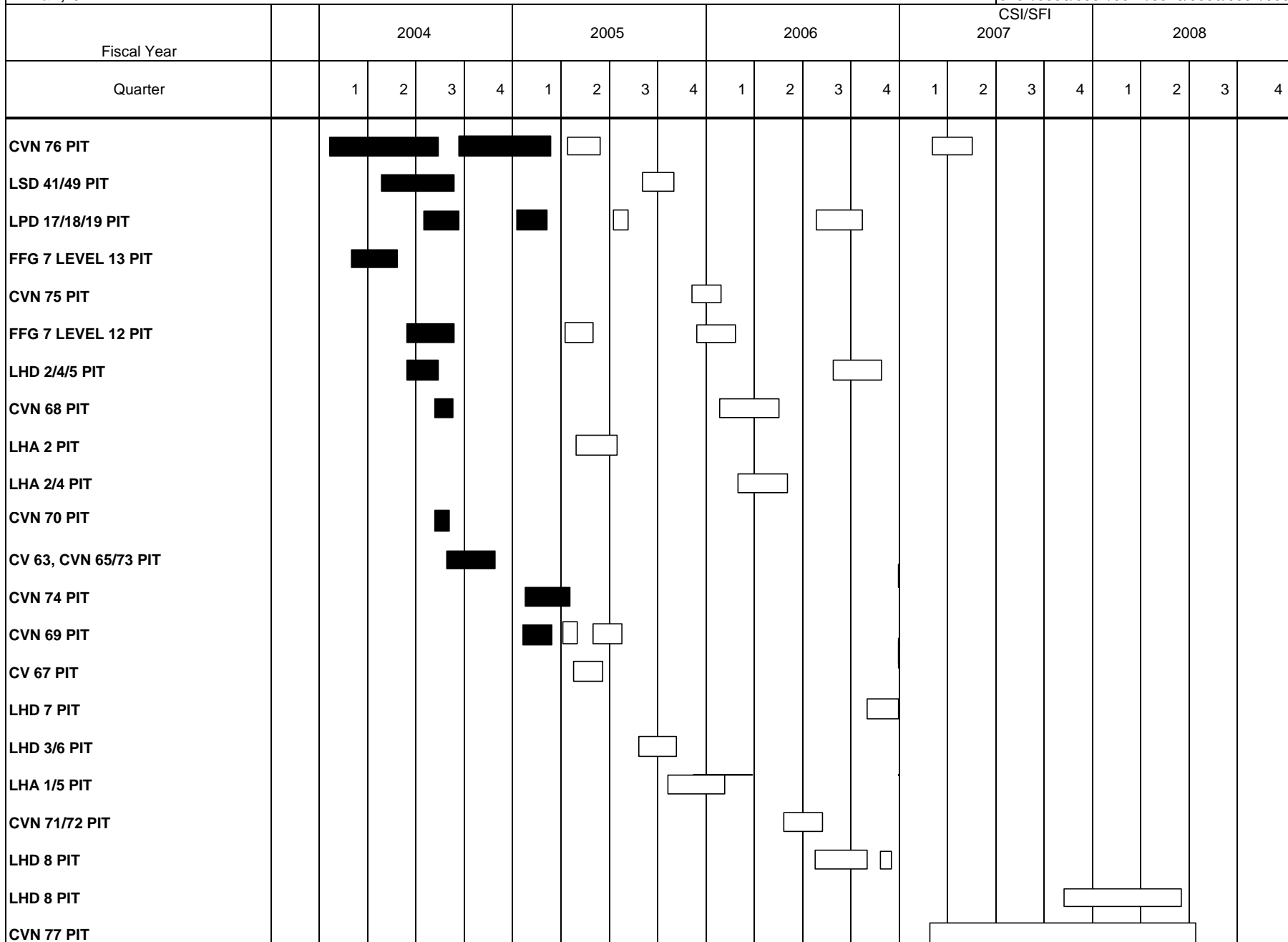
February 2005

APPROPRIATION/BUDGET ACTIVITY

RDTE&E,N/BA-4

PROJECT NUMBER AND NAME

0164/9356/9357/9527/9529/9530/9531/9532



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EXHIBIT R4, Schedule Profile										DATE: February 2005							
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME							
RDT&E,N/BA-4					0603582N SFI					0164/9356/9357/9527/9529/9530							
Fiscal Year		2004				2005				2006				2007			
Quarter		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FIT 04-01		▲															
ISET 04-01		▲															
FIT 04-02			▲														
ISET 04-02			▲														
FIT 04-03					▲												
ISET 04-03					▲												
REAGAN CST-2			▲														
REAGAN CST-3					▲												
IFC EVENT		▲															
DEP TCN EVENT					▲												
FY04 VV&A				▲	▲												
SEE 05-01						▲											
FSEC CEC/LTN Event						▲											
SEE 05-02						▲											
IA 05-01								△									
SEE 05-03									△								
DEP VV&A									△								
SEE 05-04									△								
JDEP EW/SBBMD									△								
SEE 05-05									△								
IA 05-02									△								
JDEP DTE5									△								
SEE 05-06									△								
DEP VV&A									△								
SEE 06-01									△								
IA 06-01									△								
SEE 06-02									△								
SEE 06-03									△								
IA 06-02									△								
SEE 06-04									△								
IA 06-03									△								
SEE 06-05									△								
SEE 06-06									△								
IA 06-04									△								
DEP VV&A									△								

R-1 SHOPPING LIST - Item No.

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NOTE 1:

6 SEEs and 2 Ias are scheduled for FY07

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification						DATE:		February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603609N/Conventional Munitions				
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost		41.670	33.814	36.940	26.339	26.966	27.353	28.169	28.807
1821/Conventional Fuzed Warhead Package		13.294	8.578	8.998	12.673	13.061	13.426	13.804	14.108
2299/Non-Nuclear Expendable Ordnance		25.398	25.236	24.834	10.033	10.121	10.128	10.346	10.563
0363/Insensitive Munitions Advanced Development		2.978	0.000	3.108	3.633	3.784	3.799	4.019	4.136
<p>Defense Emergency Response Funds (DERF) Funds: Not Applicable</p> <p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>Conventional Fuzed Warhead Package (Project 1821): The Navy requires improved lethality of air and surface launched ordnance to defeat advanced threats. This is the only Navy 6.3B RDT&E program that addresses improvements in warhead and fuze technology to meet this requirement. This program is a significant vehicle for orderly planning, and timely and effective transition of Navy 6.2 and 6.3A investments to Engineering and Manufacturing Development (E&MD) phase missile/weapon systems. This program addresses increased lethality against current and emerging threats, and is responsive to all mission areas -- anti-air, strike, defense suppression, theater defense and ship defense -- and supports development of complete ordnance sections. The current on-going projects address significant technology advancements for missile systems by developing mature physical concepts to enhance anti-air kill probability, advanced ordnance with augmented overland cruise missile defense and theater ballistic missile defense capabilities, and advanced seeker technology. The program supports the full spectrum of missile advanced development and technology improvements and in future years will continue to provide the vehicle to address emergent requirements by transitioning mature development efforts into weapon systems with minimal technical and financial risk.</p> <p>Non-Nuclear Expendable Ordnance (NNEO) (Project 2299): This item addresses improvements to Navy surface launched (2T) NNEO. It supports transition of the Multi-Function Fuze (MMF) from E&MD to production.</p> <p>Insensitive Munitions Advanced Development (IMAD) (Project 0363): Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet impact, thus presenting a great hazard to ships, aircraft, and personnel. This IMAD program will provide, validate, and transition technology for explosives, propellants, and ordnance to enable production of munitions insensitive to unplanned stimuli with no reduction to combat performance.</p>									

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /BA-4	R-1 ITEM NOMENCLATURE 0603609N/Conventional Munitions	
<p>B. PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>The Guidance Integrated Fuze (GIF) program is the major constituent of the NNEO budget line, representing \$25M annually in FY04-FY06, and \$10M annually from FY07-FY11. Other NNEO programs include the Multi-Function Fuze (MFF) P3I and the Extended Range Propelling Charge.</p> <p>1. FY2004 PLANS:</p> <p>(\$25M) GIF: Award two contracts for developing the GIF baseline design for high rate, low cost production. Evaluate 10 fuzes from each contractor in laboratory and simulated gun launch conditions to assess guidance, navigation and control features, conventional fuzing functions and shock survivability. Formally document all design and test data and provide to both contractors.</p> <p>2. FY2005 PLANS:</p> <p>(\$25M) GIF: Complete two additional design-build-test cycles, resulting in each contractor providing 25 (Jan 05) and 100 (Aug 05) fuzes for government evaluation. Perform the full spectrum of laboratory, simulation and gun launch tests to determine the best design. Award 1,250 fuze option to one contractor (Sep 05).</p> <p>3. FY2006 PLANS:</p> <p>(\$25M) GIF: 1,250 GIFs delivered (Apr 06): 150 for acceptance testing and 100 for operational assessment. The remaining 1,000 GIFs will be production representative hardware suitable for Field Training and Follow-on Test and Evaluation, as necessary.</p> <p>4. FY2007 PLANS:</p> <p>(9.288M) GIF: Complete qualification tests of downselected GIF design. Conduct Preliminary Design Review and Test Readiness Review in preparation for Developmental Test (DT-IIB). Conduct initial user evaluation followed by TECHEVAL.</p> <p>(.745K) ASP: Conduct initial design-build-test cycle for Advanced Shotgun Projectile. Perform laboratory tests, modeling and limited ballistic tests on initial design.</p>		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	13.294	8.578	8.998	12.673	13.061	13.426	13.804	14.108
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program provides for orderly planning, timely maturation, and effective transition of Navy 6.2 and 6.3A investments in ordnance technology to missile/weapon systems end item System Development and Demonstration (SD&D) phase development. It is the only Navy 6.3B RDT&E program that addresses improvements in warhead and fuze technology. It focuses on increasing effectiveness against current and emerging threats and is responsive to all mission areas -- anti-air, strike, defense suppression, theater defense, and ship defense. On-going projects make advanced fuze and warhead technology available to and reduce the time and risk for specific system development programs by performing three important functions: (1) identify technology advances with the most potential to improve generic warhead and fuze safety, reliability, and effectiveness; (2) mature the most promising technologies with a goal of achieving Technology Readiness Level 6, or preferably TRL 7, and (3) transition mature technology to specific cruise missile, surface-to-air missile, and land attack weapons system development programs. The program supports the full spectrum of missile advanced development and technology improvements and in future years will continue to provide the vehicle to address emergent requirements by transitioning mature development efforts into weapon systems with minimal technical and financial risk.

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CLASSIFICATION: Unclassified

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	10.778			
RDT&E Articles Quantity				
SM-2 Block IIIB MK 45 MOD 14 TDD: FY 04: To conduct developmental test and perform a data analysis and evaluation.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.100	1.100	2.230	4.292
RDT&E Articles Quantity				
<p>Micro-Electro-Mechanical System Safe and Arm Device:</p> <p>FY 04: Continued preliminary design risk reduction</p> <p>FY 05: Complete advanced development of MEMS-based distributed Safe & Arm Device. Complete testing and perform Data Analysis of multi-point arm and fire device. Document advance development effort fab assemble hardware and perform ordnance section all-up system test. Transition to SD&D: Integration Contracting preparation</p> <p>FY06: Enter System Development and Demonstration (SD&D) Contract Award. Build S&A, Integrate with Warhead and quality.</p> <p>FY07; Continue SD&D</p>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 55

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 4 of 24)

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROJECT NUMBER AND NAME 1821/Conventional Fuzed Warhead Package		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost		0.100	0.100	0.180
RDT&E Articles Quantity				
Future Standard Missile Systems (FSMS) Studies: FY 04: Continue system engineering studies to support mid and far term strategic planning for warhead and fuze development. FY 05: Continue system engineering studies to support mid and far term strategic planning for warhead and fuze development.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.416	7.378	6.668	8.201
RDT&E Articles Quantity				
Advanced Fuze Technology Development: FY 04: Perform preliminary concept design review of Guidance Integrated Fuzing and MEMS Safe and Arm Device (SAD) technologies. FY 05: Risk reduction, and other preparations for transitioning advance fuze technologies to System Development and Demonstration.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

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CLASSIFICATION: Unclassified

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDTE, N / BA-4	0603609N/Conventional Munitions	1821/Conventional Fuzed Warhead Package		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 05 Pres Controls)	13.713	8.661	9.050	12.592
Current BES/President's Budget: (FY06/07 Pres Controls)	13.294	8.578	8.998	12.673
Total Adjustments	-0.419	-0.083	-0.052	0.081
Summary of Adjustments				
SBIR	-0.230			
Economic Assumptions	-0.189	-0.083	0.052	0.081
Subtotal	-0.419	-0.083	0.052	0.081
Schedule: Not Applicable				
Technical: Not Applicable				

R-1 SHOPPING LIST - Item No. 55

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION: Unclassified

EXHIBIT R-2a, RDT&E Project Justification		DATE:	February 2005
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603609N/Conventional Munitions	1821/Conventional Fuzed Warhead Package	
<p>D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable</p> <p>E. ACQUISITION STRATEGY: Not Applicable</p> <p>F. MAJOR PERFORMERS:</p> <p>Raytheon Company, Tucson, AZ; SM-2 Block IIIB MK 45 MOD 14 TDD development NSWC Dahlgren, Dahlgren, VA; Advanced Warhead Technology Analysis; NAWC China Lake</p>			

R-1 SHOPPING LIST - Item No. 55

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION: Unclassified

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603609N/Conventional Munitions			1821/Conventional Fuzed Warhead Package								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Design and Analysis	WR/WX	NSWC Dahlgren	31.621	0.388	12/03		11/04		11/05		11/06	Continuing	Continuing	
	WR/WX	NAWC China Lake	63.701	1.737	02/04	1.100	11/04	0.750	11/05	1.250	11/06	Continuing	Continuing	
	CPAF	Raytheon	19.005	7.159	04/04	6.672	11/04	5.748	11/05	8.123	11/06	Continuing	Continuing	
	PR	JHU/APL	3.017	0.355	04/04	0.506	11/04	1.000		1.000		Continuing	Continuing	
	RC	ONR	0.067									0.000	0.067	
	MIPR	MIT/LL	0.400									0.000	0.400	
	WR	SPAWAR	0.520									0.000	0.520	
	WR/WX	NSWC Port Hueneme	0.147	2.873	12/3							0.000	3.020	
	WR/WX	NSWC Indian Head	0.800									Continuing	Continuing	
	PD	Office of Special Projects	10.394									Continuing	Continuing	
Hardware Fabrication	WR	NSWC Dahlgren	6.257									Continuing	Continuing	
	WR	NAWC China Lake	8.683									Continuing	Continuing	
	CPAF	Raytheon	8.516									Continuing	Continuing	
	PD	Office of Special Projects	41.549									Continuing	Continuing	
		Raymond						0.600	11/05	1.000	11/06	Continuing	Continuing	
		KDI						0.600	11/05	1.000	11/06	Continuing	Continuing	
Subtotal Product Development			194.677	12.512		8.278		8.698		12.373		Continuing	Continuing	
Remarks:														

R-1 SHOPPING LIST - Item No. 55

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 8 of 24)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603609N/Conventional Munitions			1821/Conventional Fuzed Warhead Package								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Dahlgren	12.987									0.000	12.987	
	WR	NAWC China Lake	15.582									0.000	15.582	
	WR	WSMR										0.000	0.000	
	CPAF	Raytheon										0.000	0.000	
	WR	NSWC Port Hueneme	0.762									0.000	#REF!	
Subtotal T&E			29.331	0.000		0.000		0.000		0.000				
Remarks:														
Program Management Support	WR	NSWC Dahlgren	2.074									0.000	2.074	
	WR	NAWC China Lake	3.360									0.000	3.360	
	C/FPI	Various	5.724	0.757	02/04	0.300	11/04	0.300	11/05	0.300	11/06	Continuing	Continuing	
	RC	NSWC Indian Head	0.160									0.000	0.160	
Travel	PD	NAVSEA Travel	0.375	0.025								Continuing	Continuing	
Subtotal Management			11.693	0.782		0.300		0.300		0.300				
Remarks:														
Total Cost			235.701	13.294		8.578		8.998		12.673		Continuing	Continuing	
Remarks:														

R-1 SHOPPING LIST - Item 55

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 4	PROGRAM ELEMENT NUMBER AND NAME 0603609N Conventional Munitions				PROJECT NUMBER AND NAME 2299 Non-Nuclear Expendable Ordnance (NNEO)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	25.398	25.236	24.834	10.033	10.121	10.128	10.346	10.563
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This budget item addresses improvements to Navy surface launched (2T) Non-Nuclear Expendable Ordnance (NNEO) outside existing operational capabilities. The commodities comprising 2T NNEO are : Major and medium caliber gun ammunition, small arms ammunition, other ship gun ammunition, pyrotechnics, and demolition items. There are no other RDT&E budget items supporting the 2T NNEO program. This project currently supports the Guidance Integrated Fuze (GIF) demonstration and incremental development program, Multi-Function Fuze (MFF) and Advanced Shotgun Projectile. These items will be used with 5" caliber gun ammunition. GIF is a "smart fuze", conforming to DoD and NATO interface requirements, that can be retrofitted on all 105mm, 5" and 155mm projectiles. While retaining all necessary conventional fuzing functions, GIF will provide GPS accuracy to the entire inventory of conventional projectiles. Multi-Function Fuze program is nearing completion, and provides performance, safety and logisitcs enhancements to the existing inventory of Navy Conventional Fuzes. The Advanced Shotgun Projectile will provide effectiveness beyond the existing 5 inch Force Protection Rounds (HE-ET and KE-ET). The Advanced Shotgun Projectile will provide mission kill capability against the entire Fast Attack Craft/Fast Incoming Attack Craft threat. The Advanced Shotgun Projectile will utilize a fragmenting steel case with a high density pre-fragmented payload to minimize parasitic mass and provide guaranteed lethal fragments on target. The Advanced Shotgun Projectile will employ a forward-ejecting load to increase lethality against the small boat threat within the layered defense scenario.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 4	PROGRAM ELEMENT NUMBER AND NAME 0603609N Conventional Munitions	PROJECT NUMBER AND NAME 2299 Non-Nuclear Expendable Ordnance (NNEO)		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.898	0.378		
RDT&E Articles Quantity				
Completed failure analysis of MFF first article and made minor design changes. Additional tasks required in FY04 to incorporate ballistic data into gun fire control system. OPEVAL completion delayed from 4th quarter FY 04 to 1st quarter FY05 due to weather conditions at test range. Residual tasks in preparation for Milestone C review are planned for 1st and 2nd quarter FY05.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.000		
RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	24.500	24.558	24.120	9.288
RDT&E Articles Quantity	4	10	25	100
This project currently supports the Guidance Integrated Fuze (GIF) demonstration and incremental development program. GIF is a "smart fuze", conforming to DoD and NATO interface requirements, that can be retrofitted on all 105mm, 5" and 155mm projectiles. While retaining all necessary conventional fuzing functions, GIF will provide GPS accuracy to the entire inventory of conventional projectiles.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.300	0.714	0.745
RDT&E Articles Quantity				
This program will provide a 5 inch Force Protection projectile that is effective against the FAC/FIAC threat to US Navy ships.				

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 11 of 24)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA - 4	0603609N Conventional Munitions	2299 Non-Nuclear Expendable Ordnance (NNEO)		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 05 Pres Controls)	25.773	25.490	25.140	10.225
Current FY06/07 President's Budget	25.398	25.236	24.834	10.033
Total Adjustments	-0.375	-0.254	-0.306	-0.192
Summary of Adjustments				
Economic Assumptions	-0.219			
Cancelled Accts	-0.064		-0.075	
Non-Navy WCF			-0.008	
Reduce IT Development		-0.017		
FFRDC Reduction		-0.007		
Non-Statutory Funding		-0.148		
Nuclear Physical Security		-0.005	-0.004	-0.002
Customer Rate Charge			-0.047	-0.019
INV29F Training Transformation			-0.002	-0.001
Inflation Savings	-0.024			
Management Improvements	-0.068	-0.077		
NAVSEA Civilian Personnel			-0.170	-0.170
Subtotal	-0.375	-0.254	-0.306	-0.192
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

R-1 SHOPPING LIST - Item No. 55

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603609N Conventional Munitions			PROJECT NUMBER AND NAME 2299 Non-Nuclear Expendable Ordnance (NNEO)				

D. OTHER PROGRAM FUNDING SUMMARY:

Related RDT&E: PE 0603795 Naval Surface Fire Support

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
BLIN 025000 5"/54 Ammunition	0.7	0.7	0	0	0	0	0	0	N/A	1.4

E. ACQUISITION STRATEGY: *

- Award 5-Year (Multi-Option) Contract for MFF.
- Award single year competitive contract for 5 inch Advanced Shotgun Projectile.
- Award contracts for developing prototype GIF fuze. Award contract to develop a producible design with builds of 25 and 100. Evaluate 25 fuzes from contractor in laboratory and simulated gun launch conditions to assess guidance, navigation and control features, conventional fuzing functions and shock survivability. Complete additional design-build-test cycle, resulting in contractor providing 100 fuzes for government evaluation. Award 1,250 fuze option for full spectrum of laboratory, simulation and gun launch tests. Navy GIF program is collaborating with Army CCF program under the direction of PUSD AT&L. Army designated to take GIF design into CCF Aquisition Program at Milestone B in FY07.

F. MAJOR PERFORMERS: **

MFF: Contractor - Alliant Tech Systems (ATK), Janesville, WI - Awarded July 99
Gov't - Naval Surface Warfare Center, Dahlgren Division, Dahlgren, VA
5 inch Advanced Shotgun Projectile: Gov't - Naval Surface Warfare Center, Dahlgren Division, Dahlgren, MD
Guidance integrated Fuzing - Contractor - Mayflower Communications, Boston, Massachusetts
Gov't - Naval Surface Warfare Center, Dahlgren Division, Dahlgren, Virginia
Army Research, Development & Engineering Center (ARDEC), Picatinney Arsenal, Picatinney, NJ

* Not required for Budget Activities 1,2,3, and 6
** Required for DON and OSD submit only.

R-1 SHOPPING LIST - Item No. 55

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE:							
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA 4			0603609N Conventional Munitions			2299 Non-Nuclear Expendable Ordnance (NNEO)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s 99/03 Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC Dahlgren	1.933										1.933	
	WR	NSWC Dahlgren - ASP				0.300	Feb-05	0.445	Oct-05	0.387	Oct-06	Continuing	Continuing	
	C/CPFF	ALLIANT	1.054										1.054	
	SS/CPFF	MOTOROLA	0.336										0.336	
	WR	NSWC Indian Head - ERPC	0.600			0.439	Oct-04					Continuing	Continuing	
	CPFF	Mayflower Communications - GIF		8.197	Dec-03	4.573							12.770	
	CPFF	CAES - GIF		2.600	Mar-04	2.800	Feb-05						5.400	
	CPFF	Toyon - GIF		0.800	Mar-04	0.500	Mar-05						1.300	
	CPFF	TBD - GIF				3.100	Sep-05	13.935	Oct-05	3.223	Oct-06	Continuing	Continuing	
Ancillary Hardware Development													0.000	
Component Development													0.000	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	WR	NSWC Dahlgren - ASP								0.100			0.000	
Training Development													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			3.923	11.597		11.712		14.380		3.710		0.000	Continuing	
Remarks:														
Development Support	WR	NSWC Dahlgren		3.103	Nov-03	0.350	Oct-04	0.350	Oct-05	0.250	Oct-06	Continuing	Continuing	
Development Support	WR	DOE Sandia				0.700	Dec-04	3.400	Dec-05			Continuing	Continuing	
Software Development	WR	NSWC Dahlgren		0.275	Nov-03	0.200	Oct-04	0.100	Oct-05		Oct-06	Continuing	Continuing	
Training Development	WR	NSWC Dahlgren				0.125	Oct-04					Continuing	Continuing	
	WR	NSWC Dahlgren - ASP								0.050	Oct-06	Continuing	Continuing	
Training Development	MIPR	ARDEC				0.350	Oct-04					Continuing	Continuing	
Integrated Logistics Support	WR	NSWC Dahlgren				0.175	Oct-04	0.175	Oct-05			Continuing	Continuing	
Integrated Logistics Support	MIPR	ARDEC				0.480	Oct-04	0.175	Oct-05	0.170	Oct-06	Continuing	Continuing	
Configuration Management	WR	NSWC Dahlgren		0.350	Nov-03	0.400	Oct-04	0.400	Oct-05	0.400	Oct-06	Continuing	Continuing	
Contract Support	WR	NSWC Dahlgren		0.150	Nov-03	0.350	Oct-04	0.250	Oct-05	0.150	Oct-06	Continuing	Continuing	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	3.878		3.130		4.850		1.020		0.000	Continuing	
Remarks:														

R-1 SHOPPING LIST - Item No. 55

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 14 of 24)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE:							
APPROPRIATION/BUDGET ACTIVITY							February 2005							
RDT&E, N / BA - 4			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
			0603609N Conventional Munitions			2299 Non-Nuclear Expendable Ordnance (NNEO)								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s 99/03 Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Dahlgren	0.528	2.650	Nov-03	2.018	Oct-04	1.100	Oct-05	2.200	Oct-06	Continuing	Continuing	
	WR	NSWC Dahlgren - MFF		0.472	Oct-03								0.472	
	WR	NSWC Dahlgren - ASP						0.169	Oct-05	0.208	Oct-06	Continuing	Continuing	
	WR	NSWC China Lake	0.200										0.200	
	WR	US Army Redstone - GIF		0.800	Nov-03	0.800	Nov-04						1.600	
	WR	ARL		0.300	Nov-03	1.200						Continuing	Continuing	
Operational Test & Evaluation	WR	COMOPTEVFOR - MFF	0.200	0.200	Nov-03	0.028						Continuing	Continuing	
	WR	COMOPTEVFOR - ERPC				0.330	Oct-04						0.330	
	WR	NSWC Dahlgren -MFF		0.128	Nov-03	0.050						Continuing	Continuing	
	MIPR	ARDEC				0.950	Oct-04	0.300	Oct-05			Continuing	Continuing	
Live Fire Test & Evaluation													0.000	
Test Assets	C/CPFF	ALLIANT	0.361										0.361	
	WR	NSWC Indian Head				0.400	Oct-04					Continuing	Continuing	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			1.289	4.550		5.776		1.569		2.408		0.000	Continuing	
Remarks:														
Contractor Engineering Support	FP	EDO	0.032										0.032	
	C/CPFF	ALLIANT	0.113										0.113	
	FP	Various		0.500	Nov-03	0.600	Oct-04	1.050	Nov-05	0.500	Nov-06	Continuing	Continuing	
Government Engineering Support	WR	NSWC Dahlgren	0.733	3.825	Oct-03	2.168	Oct-04	2.125	Oct-05	1.900	Oct-06	Continuing	Continuing	
Government Engineering Support	WR	NSWC Dahlgren - MFF		0.098	Oct-03	0.300							0.398	
Government Engineering Support	MIPR	ARDEC/ARL		0.400	Nov-03	0.600	Oct-04	0.400	Oct-05	0.200	Oct-06	Continuing	Continuing	
Program Management Support	WR	NSWC Dahlgren	0.093	0.350	Nov-03	0.650	Oct-04	0.310	Oct-05	0.295	Oct-06	Continuing	Continuing	
Program Management Support	MIPR	ARDEC		0.200	Nov-03	0.300	Oct-04	0.150	Oct-05			Continuing	Continuing	
Travel	WR	NSWC Dahlgren	0.020										0.020	
Labor (Research Personnel)													0.000	
SBIR Assessment	WR	Dahlgren											0.000	
Subtotal Management			0.991	5.373		4.618		4.035		2.895		0.000	Continuing	
Remarks:														
Total Cost			6.203	25.398		25.236		24.834		10.033		0.000	Continuing	
Remarks: Financial data reflects new schedule agreed to by Navy, Army and PUSD AT&L.														

R-1 SHOPPING LIST - Item No. 55

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 15 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:								
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA-5										0603609N Conventional Munitions										2299 Non-Nuclear Expendable Ordnance (NNEO)												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Prototype Phase																																
GIF Technology Demonstration																																
GIF System Development & Demonstration (SDD)																																
Test & Evaluation Milestones																																
Development Test																																
Operational Test																																
Production Milestones																																
LRIP FY08																																
FRP Decision FY09																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 55

* Not required for Budget Activities 1, 2, 3, and 6

Note: Working under the direction of PUSD AT&L, the GIF program is working in collaboration with the Army's Course Correcting Fuze (CCF) program. The schedule was updated to reflect the plan agreed to by both services and PUSD AT&L. Acquisition milestones and production deliveries are part of CCF program.

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[illegible]

R-1 SHOPPING LIST - Item No. 55

Note: Working under the direction of PUSD AT&L, the GIF program is working in collaboration with the Army's Course Correcting Fuze (CCF) program.

The schedule was updated to reflect the plan agreed to by both services and PUSD AT&L.

Acquisition milestones and production deliveries are part of CCF program.

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Exhibit R-2, RDTEN Budget Item Justification

(Exhibit R-2, page 17 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions				PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.978	0.000	3.108	3.633	3.784	3.799	4.019	4.136
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet impact, thus presenting a great hazard to ships, aircraft and personnel. This program will provide, validate and transition technology to all new weapon developments and priority weapon systems and enable production of munitions insensitive to these stimuli with no reduction in combat performance. The Insensitive Munitions (IM) Program is the Navy's focused effort on propellants, propulsion units, explosives, warheads, fuses and pyrotechnics to reduce the severity of cook-off and bullet/fragment impact reactions, minimizing the probability for sympathetic detonation, both in normal storage and in use, increasing ship survivability and satisfying performance and readiness requirements. Each technology area is divided into subtasks addressing specific munition/munition class IM deficiencies. Energetic materials producibility is demonstrated to assure national capability to produce and load munitions systems. The program is being closely coordinated with other Military Departments, NATO and allied countries to eliminate redundant efforts and maximize efficiency. A joint service IM requirement has been developed. Insensitive munitions are identified as a DoD critical technology requirement and considered as part of a weapon design per DoD 5000.1.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions	PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">1.146</td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.154</td><td style="text-align: center;">1.300</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.146	0.000	1.154	1.300	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.146	0.000	1.154	1.300															
RDT&E Articles Quantity																			
Validate and assess weapon systems POA&M's for IM compliance. Compile and analyze weapon system, energetic material and generic technology IM test data.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.703</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.600</td><td style="text-align: center;">0.600</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.703	0.000	0.600	0.600	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.703	0.000	0.600	0.600															
RDT&E Articles Quantity																			
Demonstrate high explosives that show improved IM characteristics while maintaining or improving operational performance. Evaluate pressed and cast metal accelerating explosives. Complete qualification of high performance booster explosive for multiple weapons systems. Begin qualification of best candidate metal accelerating explosive. Accomplishments: Demonstrated high explosives that show improved IM characteristics while maintaining or improving operational performance. Evaluation of pressed metal accelerating explosives.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.346</td><td style="text-align: center;">0.900</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.346	0.900	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.346	0.900															
RDT&E Articles Quantity																			
Evaluate and Demonstrate IM gun propulsion systems which provide improved or comparable performance to in-service systems and have improved IM characteristics.																			

R-1 SHOPPING LIST - Item No. 55

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603609N/Conventional Munitions	PROJECT NUMBER AND NAME 0363/Insensitive Munitions Advanced Development																																
B. Accomplishments/Planned Program (Cont.)																																		
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">1.094</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.508</td> <td style="text-align: center;">0.633</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Demonstrate an insensitive multi-mission, high performance rocket motor. Evaluate options for minimum smoke propellants for shoulder launched applications.</p> <p>Accomplishments: Evaluated and demonstrated IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.035</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.500</td> <td style="text-align: center;">0.200</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>Evaluate ordnance and container concepts. Model applications that reduce and enhance IM warhead design. Assess the operation utility of current and projected IM improvements to determine current state of IM and prioritize future funding for IM technology.</p> <p>Accomplishments: Assessed operational utility of IM improvements and demonstrated feasibility of IM optimization of weapons storage.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.094	0.000	0.508	0.633	RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.035	0.000	0.500	0.200	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07																														
Accomplishments/Effort/Subtotal Cost	1.094	0.000	0.508	0.633																														
RDT&E Articles Quantity																																		
	FY 04	FY 05	FY 06	FY 07																														
Accomplishments/Effort/Subtotal Cost	0.035	0.000	0.500	0.200																														
RDT&E Articles Quantity																																		

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Schedule:

NOT APPLICABLE

C. PROGRAM CHANGE SUMMARY:

Schedule:

NOT APPLICABLE

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	February 2005
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-4	0603609N/Conventional Munitions	0363/Insensitive Munitions Advanced Development	
<p>D. OTHER PROGRAM FUNDING SUMMARY: NOT APPLICABLE</p>			
<p>E. ACQUISITION STRATEGY:</p> <p>NOT APPLICABLE</p>			
<p>F. MAJOR PERFORMERS:</p> <p>NAWC WPN DIV/China Lake - Propulsion Development and Evaluation NOSSA/Indian Head - Program Management NSWC Dahlgren - Ordnance and container concept development NSWC, Indian Head - High Explosive Development and Evaluation -Gun Propulsion Development and Evaluation</p>			

R-1 SHOPPING LIST - Item No. 55

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603609N/Conventional Munitions			0363/Insensitive Munitions Advanced Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Propulsion Dev. And Eval.	WX	NAWC WPN DIV/China Lake	85.423	1.094	11/03	0.000		0.508	11/05	0.633	11/06	0.000	87.658	NA
		NAWC WPN DIV/China Lake	10.250										10.250	
Explosives Dev. And Eval.	WX	NSWC/Indian Head Div.	69.232	0.693	11/03	0.000		0.600	11/05	0.600	11/06	0.000	71.125	NA
Ordnance Dev. And Eval.	WX	NSWC/Dahlgren Div.	19.386	0.035	11/03	0.000		0.500	11/05	0.200	11/06	0.000	20.121	NA
Pyrotechnic Dev. And Eval.	WX	NSWC/Crane Div.	6.560	0.010	11/03	0.000		0.000	NA	0.000		0.000	6.570	NA
Gun Propulsion and Eval.	WX	NSWC/Indian Head Div.	0.000		11/03	0.000		0.346	11/05	0.900	11/06	0.000	1.246	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Product Development			190.851	1.832		0.000		1.954		2.333		0.000	196.970	NA
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks:														

R-1 SHOPPING LIST - Item No. 55

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 23 of 24)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603609N/Conventional Munitions			0363/Insensitive Munitions Advanced Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Contractor Engineering Support													0.000	
Program Management Support	WX	NSWC/INDIAN HEAD	29.926										29.926	
Program Management Support	WX	NOSSA	1.452	1.146	11/3	0.000		1.154	11/05	1.300	11/06	0.000	5.052	NA
Travel	WX	NOSSA	0.382										0.382	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			31.760	1.146		0.000		1.154		1.300		0.000	34.060	NA
Remarks:														
Total Cost			222.611	2.978		0.000		3.108		3.633		0.000	232.330	NA
Remarks:														

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EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Advanced Component Dev. and Prototypes		PROGRAM ELEMENT NUMBER AND NAME 0603611M Marine Corps Assault Vehicles				PROJECT NUMBER AND NAME: B0020 Expeditionary Fighting Vehicle (EFV)				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
B0020 EXPEDITIONARY FIGHTING VEHICLE (EFV)	231.948	243.058	253.675	187.456	170.978	93.603	52.191	14.867	Cont	Cont
Quantity of RDT&E Articles	4									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Expeditionary Fighting Vehicle (EFV) Program will field a successor to the Marine Corps' current amphibious vehicle, the Assault Amphibious Vehicle Model 7A1 (AAV7A1). The EFV will provide the principal means of tactical surface mobility for the Marine Air Group Task Force (MAGTF) during both ship-to-objective maneuvers and sustained combat operations ashore as part of the Navy and Marine Corps concepts within the Expeditionary Maneuver Warfare capstone. The EFV will provide the Marine Corps with the capability to execute the full spectrum of military missions from humanitarian operations to conventional combat operations. The EFV replaces the AAV7A1 Vehicle, which was originally fielded in the early 1970s. The EFV is a self-deploying, high-water speed, amphibious, armored, tracked vehicle capable of operating in all weather as well as Nuclear, Biological, and Chemical (NBC) environments.

The EFV program is a ACAT-1D program managed by the Marine Corps. The EFV is the next generation of Marine Corps Assault Vehicles being developed to satisfy the requirements of the 21st Century Marine War fighters. Along with the Landing Craft Air Cushion (LCAC) and the MV-22 Osprey, the EFV will provide the Marine Corps with the tactical mobility assets required to spearhead the concepts within the Expeditionary Maneuver Warfare capstone. Acquisition of the EFV is critical to the Marine Corps. The total EFV requirement is for 1,013 weapon systems. The EFV program remains the Marine Corps number one priority ground system acquisition.

The program received approval to enter the Systems Development and Demonstration (SDD) Phase (formerly Engineering and Manufacturing Development) of the acquisition process during the Milestone II Defense Acquisition Board Readiness Meeting held on 26 November 2000. All program exit criteria were successfully met or exceeded. The SDD Phase (2001 through 2007) will include validation of manufacturing and production processes, fabrication and testing of SDD vehicles, and finalizing and implementing the Life Cycle Management for EFV.

(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:

COST (\$ in Millions)	FY2004	FY2005	FY2006	FY2007
Accomplishment/Effort Subtotal Cost	192.345	192.595	206.109	155.889
RDTE&E Articles Qty	4			

(U) Fabrication of SDD phase prototypes. Design development. Developmental Testing. Survivability Program. SDD prototype shakedown testing. Regenerative Filtration Technology, FLIR Thermal Imager, and MK46/FLIR Upgrade Congressional Adds.

FY04: Continue design development, manufacturing planning, and producibility design enhancements of the EFV(Personnell variant) and EFV(Communications variant) designs. Continue the EFV survivability program. Continue fabrication and delivery of SDD prototypes.

FY05: Continue design development, manufacturing planning, and producibility design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Complete fabrication and delivery of SDD prototypes. Perform tasks for FLIR Thermal Imager, Regenerative Filtration Technology, and the MK 46 Weapons Systems/FLIR upgrade.

FY06: Continue design development, manufacturing planning, and producibility design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Support Development Testing (DT) and Reliability/Availability/Maintainability (RAM) testing, support MS C Operational Assessment (OA); review and analyze OA results; process, design, and incorporate modifications identified. Procurement of test spares. Refurbishment of SDD vehicles. Development of Integrated Electronic Technical Manuals (IETMs).

FY07: Continue design development, manufacturing planning, and producibility design enhancements of the EFV(P) and EFV(C) designs. Continue the EFV survivability program. Continue test support and design, integration and testing of MS C OA identified modifications. Continue development of Integrated Electronic Technical Manuals (IETMs).

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EXHIBIT R-2a, RDT&E Project Justification				DATE:
				FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDTE, N /BA-4 Advanced Component Dev. and Prototypes	PROGRAM ELEMENT NUMBER AND NAME 0603611M Marine Corps Assault Vehicles	PROJECT NUMBER AND NAME: B0020 Expeditionary Fighting Vehicle (EFV)		
COST (\$ in Millions)	FY2004	FY2005	FY2006	FY2007
Accomplishment/Effort Subtotal Cost	4.930	6.527	7.578	8.007
RDT&E Articles Qty				
(U) Continue to provide in-house technical support.				
COST (\$ in Millions)	FY2004	FY2005	FY2006	FY2007
Accomplishment/Effort Subtotal Cost	6.188	5.632	6.090	5.952
RDT&E Articles Qty				
(U) Continue to provide program support to coordinate and update program planning, program analysis, and program execution.				
COST (\$ in Millions)	FY2004	FY2005	FY2006	FY2007
Accomplishment/Effort Subtotal Cost	11.070	20.611	14.895	0.000
RDT&E Articles Qty				
(U) Develop training courseware, devices and simulators.				
FY04: Initiate development of EFV training devices/simulators. Continue development of EFV training courseware.				
FY05: Continue development of EFV training devices/simulators. Continue development of EFV training courseware.				
FY06: Complete development of EFV training devices/simulators and EFV training courseware.				
COST (\$ in Millions)	FY2004	FY2005	FY2006	FY2007
Accomplishment/Effort Subtotal Cost	17.415	17.693	19.003	17.608
RDT&E Articles Qty				
(U) Ballistic Testing. DT/OT. RAM-D Testing. EOA				
FY04: Continue DT of SDD prototypes. Continue Lethality Testing of MK-46 weapon station.				
FY05: Conduct Component Ballistic Testing. Continue DT of SDD prototypes. Complete Lethality Testing of MK-46 weapon station.				
FY06: Conduct P Variant Controlled Damaged Testing. Continue DT of SDD prototypes. Conduct Operational Testing.				
FY07: Conduct C Variant Controlled Damaged Testing. Continue DT of SDD prototypes. Conduct Operational Testing. Conduct full up system Level Live Fire Testing.				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:					
							FEBRUARY 2005					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME:						
RDT&E, N /BA-4 Advanced Component Dev. and Prototypes			0603611M Marine Corps Assault Vehicles			B0020 Expeditionary Fighting Vehicle (EFV)						
			FY2004		FY2005		FY2006		FY2007			
(U) Total \$			231.948		243.058		253.675		187.456			
(U) PROJECT CHANGE SUMMARY:												
			FY 2004	FY 2005	FY 2006	FY 2007						
(U) FY 2005 President's Budget:			237.893	236.969	181.755	161.571						
(U) Adjustments from the President's Budget:												
(U) Congressional Undistributed Reductions				-2.611								
(U) Congressional Rescissions												
(U) Congressional Program Adjustments				8.700								
(U) Inflation/Pricing Adjustments			-0.221		1.798	2.055						
(U) SBIR/STTR Transfer			-5.605									
(U) Sponsor/FMB/BSO Program Adjustments					70.122	23.830						
(U) Execution Adjustments			-0.119									
(U) FY 2006 President's Budget:			231.948	243.058	253.675	187.456						
CHANGE SUMMARY EXPLANATION:												
(U) Funding:			FY 2004 net decrease of \$5.945M reflects decreases for inflation adjustments of \$.221M; SBIR transfer of \$5.605M; and an execution decrease of \$.119M									
			FY 2005 net increase of \$6.089M reflects increases from Congressional Adds for FLIR Thermal Imager, \$4.200M; Regenerative Filtration Technology; \$3.500M; and MK46/FLIR Upgrade \$1.000M; and a decrease for Congressional Undistributed Reductions of \$2.611M.									
			FY 2006 net increase of \$71.920M reflects and increase of \$1.798m for inflation; an increase of \$73.277M in program adjustments to support continued testing and design development associated with a change in budget procurement profile which delayed MS C/LRIP by one year; and a program decrease of \$3.155M for miscellaneous pricing and technical adjustments.									
			FY 2007 net increase of \$25.885 reflects an increase of \$2.055M for inflation; an increase of \$26.412M in program adjustments to support continued testing and design development associated with a change in budget procurement profile which delayed MS S/LRIP by one year; and a program decrease of \$3.155M for miscellaneous pricing and technical adjustments.									
(U) Schedule:			The EFV program schedule is adjusted to reflect the rephasing of procurement funding which involved a one year MS C delay and a two year IOC delay. During the additional time prior to MS C, prototype testing, LRIP vehicle design and Life Cycle Management efforts will continue. MS C is scheduled for Sep 06, LRIP contract award for early FY 07, and IOC in FY 10.									
(U) Technical:			Not Applicable									
(U) C. OTHER PROGRAM FUNDING SUMMARY:												
Line Item No. & Name			FY2004	FY2005	FY2006	FY2007	FY2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
(U) PANMC, BLI #147500, EFV			-	2.464	5.738	9.504	28.730	14.875	15.631	16.030	541.770	634.742
(U) PMC BA2, BLI #202200, EFV			97.195	52.497	30.359	255.983	267.587	410.452	624.815	1,133.207	6,610.729	9,482.824
(U) PMC BA7 (Spares), BLI 700000, EFV			-	-	0.000	9.708	8.456	12.404	17.359	47.048	362.718	457.693
(U) PMC, EFV Totals			97.195	52.497	30.359	265.691	276.043	422.856	642.174	1,180.255	7,515.217	10,482.287
(U) MILCON P-038			-	-	-	-	-	-	-	-	-	0.000
(U) MILCON P-042			-	-	-	-	22.610	-	-	-	-	22.610
(U) MILCON P-041			-	-	-	2.020	-	-	-	-	-	2.020
(U) MILCON P-1010			-	-	-	-	-	-	7.182	-	0.000	7.182
(U) REMAINING EFV MCON			-	-	-	-	-	-	-	-	31.807	31.807
(U) MILCON, EFV Totals			0.000	0.000	0.000	2.020	22.610	0.000	7.182	0.000	31.807	63.619

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EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Advanced Component Dev. and Prototypes	PROGRAM ELEMENT NUMBER AND NAME 0603611M Marine Corps Assault Vehicles	PROJECT NUMBER AND NAME: B0020 Expeditionary Fighting Vehicle (EFV)
<p>(U) Related RDT&E: Not Applicable.</p> <p>(U) PE 0206623M (Marine Corps Ground Combat/Supporting Arms Systems), Project C0021, AAV7A1.</p> <p>(U) PE 0206623M (Marine Corps Ground Combat/Supporting Arms Systems), Project B2237, AVTD.</p> <p>(U) D. ACQUISITION STRATEGY:</p> <p>The EFV Program acquisition strategy includes the extensive use of test assets, models, simulation, and advanced technology research to optimize vehicle design, reduce Total Ownership Cost (TOC), and control vehicle unit cost. Three fully functional PDRR prototypes were developed and have undergone extensive developmental testing to further vehicle maturity. During the SDD phase of the program, nine prototype vehicles will be manufactured and tested extensively in developmental and operational tests. A tenth vehicle will be manufactured for use during Full Up System Level Lethality testing planned to begin in FY07. Following the LRIP decision review, LRIP vehicles will be delivered in FY08 and FY09 for use during Initial Operational Test and Evaluation (IOT&E). Initial Operational Capability (IOC) and Full Operational Capability (FOC) will occur in FY10 and FY20, respectively.</p> <p>The EFV management strategy is event driven, designed to ensure a logical progression through the EFV acquisition to reduce risk, ensure affordability, and provide adequate information to decision makers regarding acquisition progress. The EFV Program team is a partnership of government and industry experts, committed to developing the most versatile combat vehicle, providing the optimum balance of combat effectiveness, affordability, innovation, and technology. The program Integrated Product Teams (IPTs), composed of contractors, sub-contractors, Marines, and government civilians, are the foundation of the EFV acquisition management process. The government, prime contractor, and major subcontractors are co-located in a highly integrated communication environment that facilitates proactive decision-making processes and flexible execution of plans to support these teams and product development.</p> <p>CAIV has been institutionalized throughout the program and as such is an integral consideration in all trade studies and decisions. The program has had a highly integrated and extensive test approach since its inception which has included a very strong engineering-model and prototype testing program supported by extensive modeling and simulation techniques which is intended to continue throughout SDD. As a Program Management Oversight for Life Cycle Support pilot program, the program office management strategy includes planning for life cycle support once the system is fielded to more efficiently manage and optimize operating and support requirements and reduce overall program cost.</p> <p>The program's contracting approach for the EFV is to award the vast majority of the work to one prime contractor, competitively selected in 1996. GDLS operating through its division GDAMS will be responsible for designing and producing the vehicle and providing support for testing from PDRR through LRIP. Contracts for Government Furnished Property will be kept to a minimum and will include only property which could not otherwise be available to the contractor. Local Area Network support contract is currently provided by an 8(a) firm. Contract support for programmatic and technical support was competitively awarded in September 2003 as a cost plus fixed-fee contract and will continue through FY08. The Life Cycle Support Contract is scheduled for award during FY07 for a portion of the initial operations and maintenance support for the fielded EFVs.</p> <p>(U) E. MAJOR PERFORMERS:</p> <p>FY 03-07 - General Dynamics, Woodbridge, VA. Validation of manufacturing and production processes, fabrication and testing of SDD vehicles, and finalizing and implementing Life Cycle Management. Awarded Feb 01.</p>		

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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: FEBRUARY 2005						
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME						
RDT&E, N /BA-4 Advanced Component Development and Prototypes				0603611M Marine Corps Assault Vehicles				B0020 Expeditionary Fighting Vehicle (EFV)						
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PDRR Contract	CPAF	GDLS - PDRR Award	399.703									Cont	Cont	400.000
SDD Contract	CPAF	GDLS - SDD Award	502.903	192.345	1/	192.595	1/	206.109	1/	155.889	1/	Cont	Cont	910.195
Subtotal Program Dev Spt			902.606	192.345		192.595		206.109		155.889		Cont	Cont	
Remarks:														
1/ The SDD contract was definitized in July 2001. The SDD contract is for the entire SDD effort and is incrementally funded. Target value does not include the program restructure.														
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Support		EG&G, Manassas, VA	23.256									Cont	Cont	24.000
Program Support	CPFF	EG&G, Manassas, VA		4.173		4.212	2/	4.296	2/	4.382	2/	Cont	Cont	18.226
Program Support		Various Government Contracts	15.587	2.015	3/	1.420	3/	1.794	3/	1.570	3/	Cont	Cont	17.063
Training devices/simulators	CPAF	GDLS	1.428	11.070	3Q	20.611	2Q	14.895	1Q			Cont	Cont	
Subtotal Program Support			40.271	17.258		26.243		20.985		5.952		Cont	Cont	
2/ EG&G contract type (CPFF) was awarded in September 2003 for contract performance through FY08.														
3/ Various contract award dates.														
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Testing	N/A	Various Locations	22.531	17.415	3/	17.693	3/	19.003	3/	17.608	3/	Cont	Cont	
Subtotal T&E			22.531	17.415		17.693		19.003		17.608		Cont	Cont	
Remarks:														
3/ Various contract award dates.														

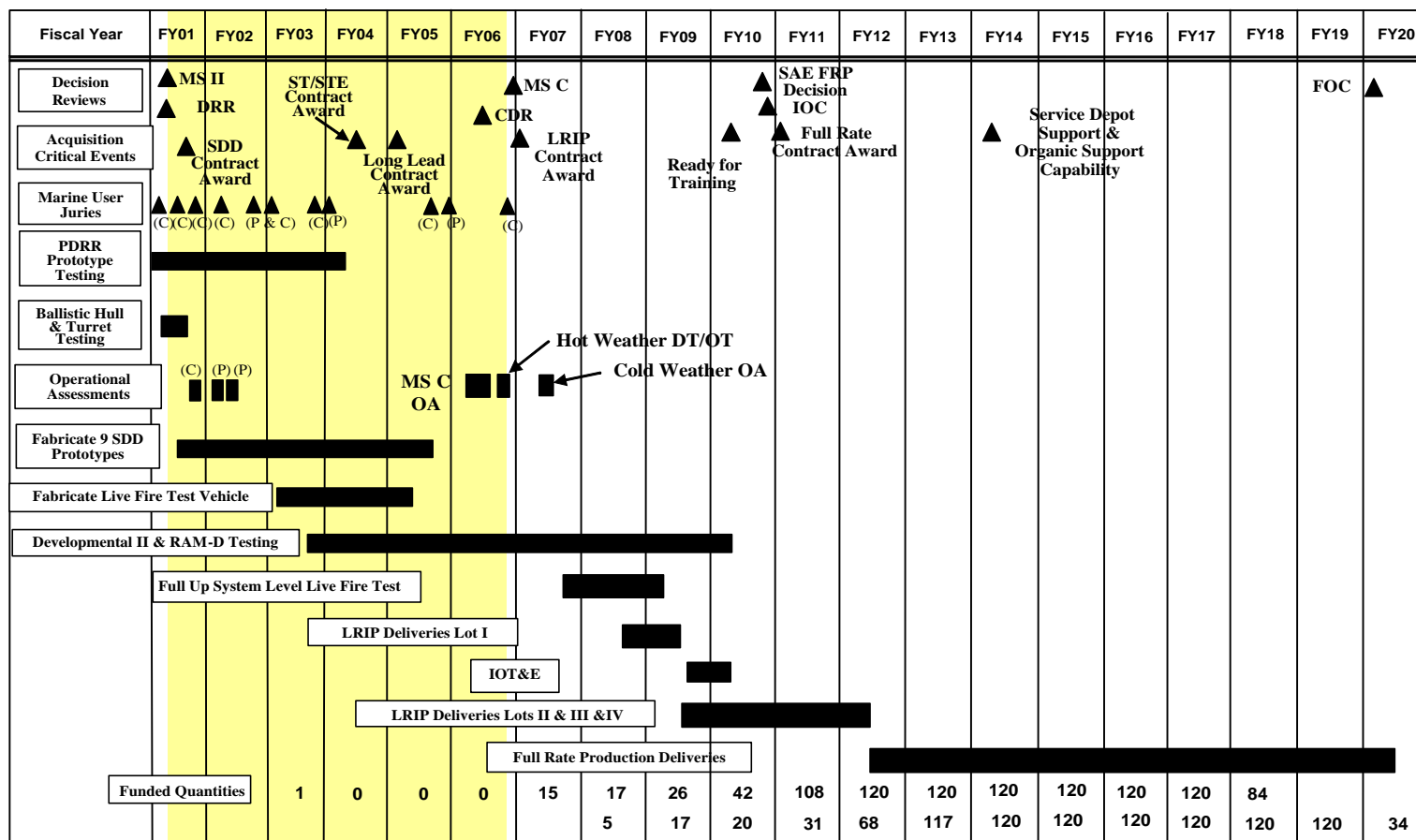
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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: FEBRUARY 2005						
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Advanced Component Development and Prototypes				PROGRAM ELEMENT NUMBER AND NAME 0603611M Marine Corps Assault Vehicles				PROJECT NUMBER AND NAME B0020 Expeditionary Fighting Vehicle (EFV)						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
In-house technical support		Various Government Labs	74.504	3.104	3/	4.557	3/	5.570	3/	5.956	3/	Cont	Cont	
Mgmt & Prof Support		MITRE CORP, McClean, VA	9.700	1.826	1Q	1.970	1Q	2.008	1Q	2.051	1Q	Cont	Cont	
Subtotal Management			84.204	4.930		6.527		7.578		8.007		Cont	Cont	
Remarks:														
4/ Various contract award dates.														
Total Cost			1,049.612	231.948		243.058		253.675		187.456		Cont	Cont	

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Exhibit R-4/4a Schedule Profile/Detail										DATE:	
										FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME	
RDT&E, N/BA-4 Advanced Component Development and Prototypes					0603611M Marine Corps Assault Vehicles					B0020 Expeditionary Fighting Vehicle (EFV)	



R-1 SHOPPING LIST - ITEM NO. 56

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Exhibit R-4/4a, Schedule Profile/Detail
(Exhibit R-4/4a, Page 7 of 8)

Exhibit R-4/4a Schedule Profile/Detail							DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Advanced Component Development and Prototypes		PROGRAM ELEMENT NUMBER AND NAME 0603611M Marine Corps Assault Vehicles			PROJECT NUMBER AND NAME B0020 Expeditionary Fighting Vehicle (EFV)					
SCHEDULE DETAIL			FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
MS C					4Q					
SAE FRP Decision									4Q	
IOC									4Q	
PDRR Prototype Testing			1-2Q							
Operational Assessments					2-3Q	2Q				
Fabrication of 9 Prototypes			1-4Q	1-3Q						
Fabricate Live Fire Test Vehicle			1-4Q	1-2Q						
Developmental II & RAM-D Testing			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1Q	
CDR					2Q					
LRIP Contract Award						1Q				
Full Up System Level Live Fire Test						1-4Q	1-4Q			
LRIP Deliveries Lot I							3-4Q	1-2Q		
IOT&E								3-4Q	1-2Q	
Ready for Training									2Q	
LRIP Deliveries Lots II & III & IV								3-4Q	1-4Q	1-4Q
Full Rate Contract Award										1Q

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EXHIBIT R-2a, RDT&E Project Justification					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME		
RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)		0603612M Marine Corps Mine/Countermeasures Systems				C2106 Advance Mine Detector		
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.925	4.478	3.265	3.760	0.649	0.000	0.000	0.000
RDT&E Articles Qty	12							
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
The Advance Mine Detector (AMD) will be a man-portable system capable of detecting both metallic and nonmetallic buried mines regardless of fuse type. The AMD will alleviate a critical deficiency for detection of buried metallic and semi-metallic mines. Current mine detection technologies are only able to detect metallic mines. The Family of Explosive Ordnance Disposal (FEOD) mission is to provide a capability to neutralize the hazards associated with explosive ordnance that are beyond the normal capabilities of other specialties and present a threat to operations, installations, personnel and material. The FEOD Equipment accomplishes this mission by detecting, identifying, rendering safe, recovering, evacuating and disassembling, and/or disposing of unexploded ordnance with a variety of tools.								
(U) ACCOMPLISHMENTS/PLANNED PROGRAM:								
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007				
Accomplishment/Effort Subtotal Cost	0.036	1.135	0.500	0.500				
RDT&E Articles Qty	12							
AMD: Facilitate program transition to Marine Corps Systems Command (MARCORSYSCOM) from Office of Naval Research (ONR). Provide program management, technical support, and travel.								
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007				
Accomplishment/Effort Subtotal Cost	0.446	1.000	1.700	2.716				
RDT&E Articles Qty								
AMD: Conduct initial developmental testing and follow-up developmental testing and operational testing in various soil types and environmental conditions of the AMD prototype to determine system capabilities.								
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007				
Accomplishment/Effort Subtotal Cost	0.000	0.706	0.634	0.544				
RDT&E Articles Qty								
AMD: Update programmatic documentation and technical drawings. Development of technical manuals and training packages.								
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007				
Accomplishment/Effort Subtotal Cost	0.418	1.637	0.431	0.000				
RDT&E Articles Qty								
AMD: Conduct Trade Studies to reduce power consumption/weight, improve detection depths, and sweep rate. Engineering and design studies to improve ergonomic characteristics, integrate human factors and finalize overall system design.								
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007				
Accomplishment/Effort Subtotal Cost	0.025	0.000	0.000	0.000				
RDT&E Articles Qty								
FEOD: Conduct re-configuration studies on the EOD tool sets.								
(U)Total \$	0.925	4.478	3.265	3.760				

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EXHIBIT R-2a, RDT&E Project Justification						DATE:		February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME				
RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)			0603612M Marine Corps Mine/Countermeasures Systems				C2106 Advance Mine Detector				
PROJECT CHANGE SUMMARY:			<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>FY2007</u>					
(U) FY 2005 President's Budget:			1.177	4.522	6.234	3.716					
(U) Adjustments from the President's Budget:			0.025								
(U) Congressional/OSD Program Reductions											
(U) Congressional Rescissions											
(U) Congressional											
(U) Reprogrammings					-3.000						
(U) SBIR/STTR Transfer			-0.033								
(U) Minor Affordability Adjustment			-0.244	-0.044	0.031	0.044					
(U) FY 2006 OSD Budget:			0.925	4.478	3.265	3.760					
CHANGE SUMMARY EXPLANATION:											
(U) Funding: Change in FY06 funding is due to realignment of funding to higher priority programs within the Marine Corps.											
(U) Schedule: Not Applicable.											
(U) Technical: Not Applicable.											
(U) C. OTHER PROGRAM FUNDING SUMMARY:											
<u>Line Item No. & Name</u>		<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Compl</u>	<u>Total Cost</u>
PMC BLI 632500 Demo Support Sys		2.089	3.409	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.498
Advanced Mine Detector											
PMC BLI 652000 EOD Sys Advanced Mine Detector		0.000	0.000	1.097	4.639	3.814	1.065	0.000	0.000	0.000	10.615
(U) Related RDT&E: Not Applicable.											
(U) D. ACQUISITION STRATEGY: By leveraging an exploratory technology program for mine detection, the Marine Corps will maintain active involvement in the Advanced Mine Detector (AMD) development during concept and technology development. A backpack prototype, configured to detect Trinitrotoluene (TNT), Hexahydro-Trinitro-Triazine (RDX), tetryl and metallic and semi-metallic mines, will be delivered 2nd quarter FY 05 for test and evaluation. The demonstrated technology will then transition into system development and demonstration phase for further development. A cost plus contract with negotiated contractor incentives in the areas of weight, sweep rate, and power consumption will be awarded. After completion of Milestone B, the program enters Low Rate Initial Production (LRIP). LRIP items will undergo Intial Operational Test and Evaluation in preparation for full rate production. The production phase will employ a fixed price production contract.											
(U) SCHEDULE PROFILE: Not Applicable.											
(U) E. MAJOR PERFORMERS:											
FY04 - Aberdeen Test Center, Aberdeen, MD, Test Activity for the AMD Prototypes											
FY05 - TBD Competetive Contract for the Engineering and design support to improve ergonomic characteristics, integrate human factors and finalize overall system design.											

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Exhibit R-3 Cost Analysis									DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT					PROJECT NUMBER AND NAME					
RDT&E, N /BA-4 Advanced Component Dev & Prototypes (ADCP&P)				0603612M Marine Corps Mine/Countermeasures					C2106 Advance Mine Detector					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Engineering & Design	TBD	TBD	0.000			1.132	2Q/05	0.434	1Q/06			Cont	Cont	
Systems Engineering	TBD	TBD	0.000			0.505	3Q/05	0.231	3Q/06	0.194	2Q/06	Cont	Cont	
Subtotal Product Dev			0.000	0.000		1.637		0.665		0.194		Cont	Cont	
Remarks:														
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Engineering Spt	RCP	MCSC Quantico, VA	0.128	0.275	3Q/04	1.135	1Q/05	0.400	1Q/06	0.350	1Q/06	Cont	Cont	
Engineering Spt	MIPR	CECOM Alexandria, VA	0.140	0.143	1Q/04								0.283	0.283
Engineering Spt	RCP	CECOM Alexandria, VA	0.042										0.042	0.042
Engineering Spt	RCP	MCSC Quantico, VA		0.036	3Q/04								0.036	0.036
Engineering Spt (FEOD)	RCP	MCSC Quantico, VA		0.025	2Q/04								0.025	0.025
Subtotal Support			0.310	0.479		1.135		0.400		0.350		Cont	Cont	
Remarks:														
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Testing	MIPR	Aberdeen Prvg Grnd, MD		0.446	3Q/04	1.000	1Q/05	0.700	1Q/06	1.600	1Q/07	Cont	Cont	
Testing	MIPR	MCAS Yuma, AZ		0.000		0.000		1.000	2Q/06	1.116	2Q/07	Cont	Cont	
Subtotal T&E			0.000	0.446		1.000		1.700		2.716		Cont	Cont	
Remarks:														
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Management Spt	RCP	BAE, Stafford, VA	0.000			0.706	1Q/05	0.500	1Q/06	0.500	2Q/06	Cont	Cont	
Management Spt													0.000	
Subtotal Management			0.000	0.000		0.706		0.500		0.500		Cont	Cont	
Remarks:														
Total Cost			0.310	0.925		4.478		3.265		3.760		Cont	Cont	

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EXHIBIT R-2, RDT&E Budget Item Justification				DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Demonstration/Validation	PROGRAM ELEMENT (PE) NAME AND NO. 0603635M Marine Corps Ground Combat/Supporting Arms Systems							
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	24.405	30.414	0.500	0.736	0.507	0.508	0.513	0.513
C1964 Anti-Armor Weapon System	3.702	11.283	0.000	0.000	0.000	0.000	0.000	0.000
C2112 Lightweight 155mm Howitzer (LW155)	6.984	0.000	0.000	0.000	0.000	0.000	0.000	0.000
C2256 Integrated Infantry Combat System	1.565	1.665	0.000	0.000	0.000	0.000	0.000	0.000
C2507 Family of Small Craft	0.347	0.001	0.000	0.000	0.000	0.000	0.000	0.000
* C2508 Internally Transportable Vehicle (ITV)	0.000	10.195	0.000	0.000	0.000	0.000	0.000	0.000
C2509 Motor Transport Mod	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.004
C2614 SMAW Follow-On	5.435	3.104	0.500	0.500	0.507	0.508	0.508	0.509
** C3130 Lightweight Prime Mover	0.000	2.284	0.000	0.236	0.000	0.000	0.000	0.000
C9116 Nanoparticles Neutralization of Facility Threats	6.372	1.882	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles								
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
This PE supports the demonstration and validation of Marine Corps Ground/Supporting Arms Systems for utilization in Marine Air-Ground Expeditionary Force amphibious operations.								
This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates hardware for experimental test related to specific ground weapon system.								
Note:								
* C2508 = \$4.535M of FY05 funding is available to Forward Finance FY06								
** C3130 = \$2.284M of FY05 funding is available to Forward Finance FY06								

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-4 Demonstration/Validation		PROGRAM ELEMENT (PE) NAME AND NO. 0603635M Marine Corps Ground Combat/Supporting Arms Systems	
B. PROGRAM CHANGE SUMMARY			
	FY2004	FY2005	FY2006
(U) FY 2005 President's Budget:	26.009	22.440	13.674
(U) Adjustments from the President's Budget:			
(U) Congressional/OSD Program Reductions			
(U) Congressional Rescissions			
(U) Congressional Increases		12.800	
(U) POM 06 Core Adjustment			-4.486
(U) Reprogrammings	-1.086	-4.488	-0.003
(U) SBIR/STTR Transfer	-0.518		
(U) Minor Affordability Adjustment		-0.338	
(U) FY 2006 President's Budget:	24.405	30.414	0.500
CHANGE SUMMARY EXPLANATION:			
(U) Funding: See Above. (See R-2a exhibits for breakout at project level).			
(U) Schedule:			
(U) Technical:			

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								February 2005			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /						0603654N/Joint Service EOD Development					
BA-4											
COST (\$ in Millions)	Prior Years Cost	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Program
Total PE Cost		16.547	21.243	34.418	28.390	29.220	25.097	33.755	34.267	Continuing	Continuing
0377/Joint Service EOD Systems		4.392	7.269	23.631	19.386	20.932	17.557	26.731	27.098	Continuing	Continuing
1317/EOD Diving System		7.634	2.400	2.296	2.764	2.815	2.810	2.866	2.920	Continuing	Continuing
4023/VSW MCM/ Force Protection UUV		4.521	9.796	8.491	6.240	5.473	4.730	4.158	4.249	Continuing	Continuing
4024/SMCM Shallow and Deep Water UUV		0.000	1.778	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles		Various	Various	Various	Various	Various	Various	Various	Various		0
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:											
* Includes a \$3.4M Congressional Add for Magneto-Inductive Technology.											
This is a Joint Service Program. This program provides for the development of Explosive Ordnance Disposal tools and equipment for use by all military services. The responsibility is assigned to the Navy as single service manager, by Department of Defense Directive 5160.62 of 26 April 1989, for management of the Joint Service Explosive Ordnance Disposal Research and Development Program. Proliferation of sophisticated types of foreign and domestic ordnance and Improvised Explosive Devices necessitate a continuing development program to provide Explosive Ordnance Disposal personnel of all military services with the special equipment and tools required to support this mission. This program also provides life support related equipment necessary to support the performance of Navy Explosive Ordnance Disposal tasks underwater. This equipment must have inherently low acoustic and magnetic signatures in order to allow the Explosive Ordnance Disposal technician to safely approach, render-safe and dispose of sea mines and other underwater ordnance.											

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME			
RDT&E, N / BA-4		0603654N/Joint Service EOD Development			0377/Joint Service EOD Systems			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	4.392	7.269	23.631	19.386	20.932	17.557	26.731	27.098
RDT&E Articles Qty	Various	Various	Various	Various	Various	Various	Various	Various
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides Explosive Ordnance Disposal personnel of all military services with the specialized equipment and tools required to support their mission of detection/location, identification, render-safe, recovery, field and laboratory evaluation, and disposal of unexploded ordnance (UXO) that is a threat to military operations, installations, personnel, or material. UXO includes foreign and domestic, both conventional and non-conventional, including improvised explosive devices (IEDs).								

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.831</td><td style="text-align: center;">1.284</td><td style="text-align: center;">8.287</td><td style="text-align: center;">8.163</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Develop EOD detection, identification and knowledge systems to include, the Non-Invasive Filler Identification (NFI) project, the EOD Decision Support System (EOD DSS) (formerly the Joint EOD Knowledge Technology Operational Demonstration Advanced Concept Technology Demonstration (JEOD-KTOD ACTD) project), and the Advanced Ordnance Locator project. Also, conduct Analysis of Alternatives and conduct evaluations of Commercial/Non-Developmental Items (C/NDI EOD tools/equipment).</div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.831	1.284	8.287	8.163	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.831	1.284	8.287	8.163															
RDT&E Articles Quantity	Various	Various	Various	Various															
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">2.293</td><td style="text-align: center;">3.150</td><td style="text-align: center;">3.682</td><td style="text-align: center;">4.650</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Develop access, disruption and neutralization systems to include, the Large IED Access and Disruption project, the Submunition Clearance project, and the Joint Laser Ordnance Neutralization System (JLONS). Conduct Analysis of Alternatives study for the Low Order Tools project. Also, conduct Analysis of Alternatives and conduct evaluations of Commercial/Non-Developmental Item (C/NDI) EOD tools/equipment.</div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.293	3.150	3.682	4.650	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	2.293	3.150	3.682	4.650															
RDT&E Articles Quantity	Various	Various	Various	Various															
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.818</td><td style="text-align: center;">1.535</td><td style="text-align: center;">0.594</td><td style="text-align: center;">0.578</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td><td style="text-align: center;">Various</td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Develop remote systems to include the EOD Man Portable Robotics Program (MPRS) project.</div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.818	1.535	0.594	0.578	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.818	1.535	0.594	0.578															
RDT&E Articles Quantity	Various	Various	Various	Various															

R-1 SHOPPING LIST - Item No. 59

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 30%;"></td><td style="width: 15%;">FY 04</td><td style="width: 15%;">FY 05</td><td style="width: 15%;">FY 06</td><td style="width: 15%;">FY 07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.450</td><td>1.300</td><td>11.068</td><td>5.995</td></tr><tr><td>RDT&E Articles Quantity</td><td>Various</td><td>Various</td><td>Various</td><td>Various</td></tr></table> <div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.450	1.300	11.068	5.995	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.450	1.300	11.068	5.995															
RDT&E Articles Quantity	Various	Various	Various	Various															
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 30%;"></td><td style="width: 15%;">FY 04</td><td style="width: 15%;">FY 05</td><td style="width: 15%;">FY 06</td><td style="width: 15%;">FY 07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td>Various</td><td>Various</td><td>Various</td><td>Various</td></tr></table> <div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 30%;"></td><td style="width: 15%;">FY 04</td><td style="width: 15%;">FY 05</td><td style="width: 15%;">FY 06</td><td style="width: 15%;">FY 07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td>Various</td><td>Various</td><td>Various</td><td>Various</td></tr></table> <div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems																																																				
<p>(U) C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: right;">FY 2004</th> <th style="text-align: right;">FY 2005</th> <th style="text-align: right;">FY 2006</th> <th style="text-align: right;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>(U) Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(FY 05 President Controls):</td> <td style="text-align: right;">4.528</td> <td style="text-align: right;">7.339</td> <td style="text-align: right;">7.520</td> <td style="text-align: right;">8.508</td> </tr> <tr> <td>Current BES/President's Budget</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(FY06 President Controls):</td> <td style="text-align: right;">4.392</td> <td style="text-align: right;">7.269</td> <td style="text-align: right;">23.631</td> <td style="text-align: right;">19.386</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.136</td> <td style="text-align: right; border-top: 1px solid black;">-0.070</td> <td style="text-align: right; border-top: 1px solid black;">16.111</td> <td style="text-align: right; border-top: 1px solid black;">10.878</td> </tr> <tr> <td>Summary of Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Misc Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.136</td> <td style="text-align: right; border-top: 1px solid black;">-0.070</td> <td style="text-align: right; border-top: 1px solid black;">16.111</td> <td style="text-align: right; border-top: 1px solid black;">10.878</td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-0.136</td> <td style="text-align: right; border-top: 1px solid black;">-0.070</td> <td style="text-align: right; border-top: 1px solid black;">16.111</td> <td style="text-align: right; border-top: 1px solid black;">10.878</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Schedule:</p> <p>An Analysis of Alternatives study was conducted for the Low Order Tools project during the 1ST QTR of FY04. The Low Order Tools requirement does not justify a stand alone program initiation, however it will become a module of the EOD DSS program in FY06. JLONS System Development and Demonstration and Milestone C are both extended one quarter since additional T&E is anticipated. Production will extend for several years to accommodate the other services' requirements. The requirements for Classified Project III call for two different system solutions. Therefore, the schedule shows a split after the Interim Progress Review. The more urgent solution can be achieved by FY07, but the other required solution cannot achieve production until FY 10.</p> <p>(U) Technical:</p> <p>Not applicable.</p>						FY 2004	FY 2005	FY 2006	FY 2007	(U) Funding:					Previous President's Budget					(FY 05 President Controls):	4.528	7.339	7.520	8.508	Current BES/President's Budget					(FY06 President Controls):	4.392	7.269	23.631	19.386	Total Adjustments	-0.136	-0.070	16.111	10.878	Summary of Adjustments					Misc Adjustments	-0.136	-0.070	16.111	10.878	Subtotal	-0.136	-0.070	16.111	10.878
	FY 2004	FY 2005	FY 2006	FY 2007																																																		
(U) Funding:																																																						
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Current BES/President's Budget																																																						
(FY06 President Controls):	4.392	7.269	23.631	19.386																																																		
Total Adjustments	-0.136	-0.070	16.111	10.878																																																		
Summary of Adjustments																																																						
Misc Adjustments	-0.136	-0.070	16.111	10.878																																																		
Subtotal	-0.136	-0.070	16.111	10.878																																																		

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems			

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
OPN 5509	152	1574	12496	9566	7875	5250	10150	8600	Continuing	Continuing
(Funds listed in section D. are only for cost code VN075, EOD Equipment/Systems.)										

(U) E. ACQUISITION STRATEGY: *

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

For the Large IED Access & Disruption there is a dual acquisition strategy; an acquisition sub-project for commercially available Large IED tools and a full-scale development sub-project. Within each of these sub-projects there will be two tools pursued.

* Not required for Budget Activities 1,2,3, and 6

** Required for DON and OSD submit only.

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	EODTD, IH, MD	81.056	0.769	10/03	2.392	10/04	10.668	10/05	7.280	10/06	Continuing	Continuing	
Software Development	WR	EODTD, IH, MD	3.529	0.150	10/03	0.200	10/04	5.400	10/05	4.955	10/06	Continuing	Continuing	
ILS	WR	EODTD, IH, MD	36.920	0.750	10/03	1.000	10/04	0.850	10/05	0.750	10/06	Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Product Development			121.505	1.669		3.592		16.918		12.985		0.000	156.669	
Remarks:														
Program Management Support	C/CPFF	EDO, Alexandria, VA	3.460										3.460	
Program Management Support	C/CPFF	EDO, Alexandria, VA		0.345	10/03	0.300	10/04	0.600	10/05	0.600	10/06	0.000	1.245	
												Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Support			3.460	0.345		0.300		0.600		0.600		0.000	5.305	
Remarks:														

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME							
RDT&E, N / BA-4			0603654N/Joint Service EOD Development				0377/Joint Service EOD Systems							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	EODTD, IH, MD	56.573	1.574	10/03	2.000	10/04	2.200	10/05	1.400	10/06	Continuing	Continuing	N/A
Operational Test & Evaluation	WR	EODTD, IH, MD	8.245							0.866	10/06		8.245	N/A
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal T&E			64.818	1.574		2.000		2.200		2.266		0.000	72.858	
Remarks:														
Program Management Support	WR	EODTD, IH, MD	4.170	0.350	10/03	0.400	10/04	0.600	10/05	0.625	10/06	Continuing	Continuing	N/A
Miscellaneous	Various	Various	4.236	0.454	10/03	0.977	10/04	3.313	10/05	2.910	10/06	Continuing	Continuing	N/A
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Management			8.406	0.804		1.377		3.913		3.535		Continuing	Continuing	
Remarks:														
Total Cost			198.189	4.392		7.269		23.631		19.386		Continuing	Continuing	
Remarks:														

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, RDT&E Project Justification																	DATE:																						
																	February 2005																						
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND NUMBER										PROJECT NAME AND NUMBER																								
RDT&E, N/BA-4					JT Service EOD Dev 0603654N										JT Service EOD Systems/0377																								
0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems																																							
RDT&E Milestone Chart																																							
FY 2004					FY 2005					FY 2006					FY 2007					FY 2008					FY 2009					FY 2010					FY 2011				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
CLASSIFIED PROJECT II																																							
Testing (DT-II)																																							
Production Decision																																							
Production/Deliveries																																							
LARGE IED ACCESS & DISRUPTION																																							
Testing (DEV)																																							
Production Decision (DEV)																																							
Production																																							

R-1 SHOPPING LIST - ITEM NO. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, RDT&E Project Justification																			DATE:													
										February 2005																						
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND					PROJECT NAME AND NUMBER																						
RDT&E, N/BA-4					JT Service EOD Dev 0603654N					JT Service EOD Systems/0377																						
0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems																																
RDT&E Milestone Chart																																
FY 2004					FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NON-INVASIVE FILLER ID																																
Testing (Preliminary)																																
Testing (Final)																																
Production Decision																																
Production																																
EOD MAN PORTABLE ROBOTIC SYSTEM																																
Testing (Preliminary)																																
Testing (Final)																																
Production Decision																																
Production																																
Block Upgrade (DEV)																																
Block Upgrade (PROD)																																

R-1 SHOPPING LIST - ITEM NO. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, RDT&E Project Justification																				DATE:											
																				February 2005											
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND										PROJECT NAME AND NUMBER																
RDT&E, N/BA-4					JT Service EOD Dev 0603654N										JT Service EOD Systems/0377																
0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems																															
RDT&E Milestone Chart																															
FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
SUBMUNITIONS CLEARANCE																															
Testing (Preliminary)																															
Testing (Final)																															
Production Decision																															
Production																															
JLONS																															
Milestone B																															
System Development and Demonstration																															
Milestone C																															
Production and Deployment																															
Block Improvements (DEV)																															

R-1 SHOPPING LIST - ITEM NO. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, RDT&E Project Justification																								DATE: February 2005								
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND NUMBER										PROJECT NAME AND NUMBER																	
RDT&E, N/BA-4					JT Service EOD Dev 0603654N										JT Service EOD Systems/0377																	
0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems																																
RDT&E Milestone Chart																																
FY 2004					FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
LOW ORDER TOOLS																																
Analysis of Alternatives (AOA Study)																																
EOD DECISION SUPPORT SYSTEM																																
Program Initiation									▲																							
Initial Test Phase									■																							
Initial Production Decision									▲																							
Production									■																							
Increment I (DEV)									■																							
Increment I (PROD)													■																			
Increment II (DEV)													■																			
Increment II (PROD)																	■															
Increment III (DEV)																					■											
Increment III (PROD)																									■							

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, RDT&E Project Justification																								DATE: February 2005								
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND NUMBER										PROJECT NAME AND NUMBER																	
RDT&E, N/BA-4					JT Service EOD Dev 0603654N										JT Service EOD Systems/0377																	
0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems																																
RDT&E Milestone Chart																																
FY 2004					FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
ADVANCED ORDNANCE LOCATOR																																
Program Initiation													▲																			
Development													■				■				■											
Testing																					■				■							
Production Decision																									▲							
Production																									■				■			

R-1 SHOPPING LIST- ITEM NO. 59

UNCLASSIFIED

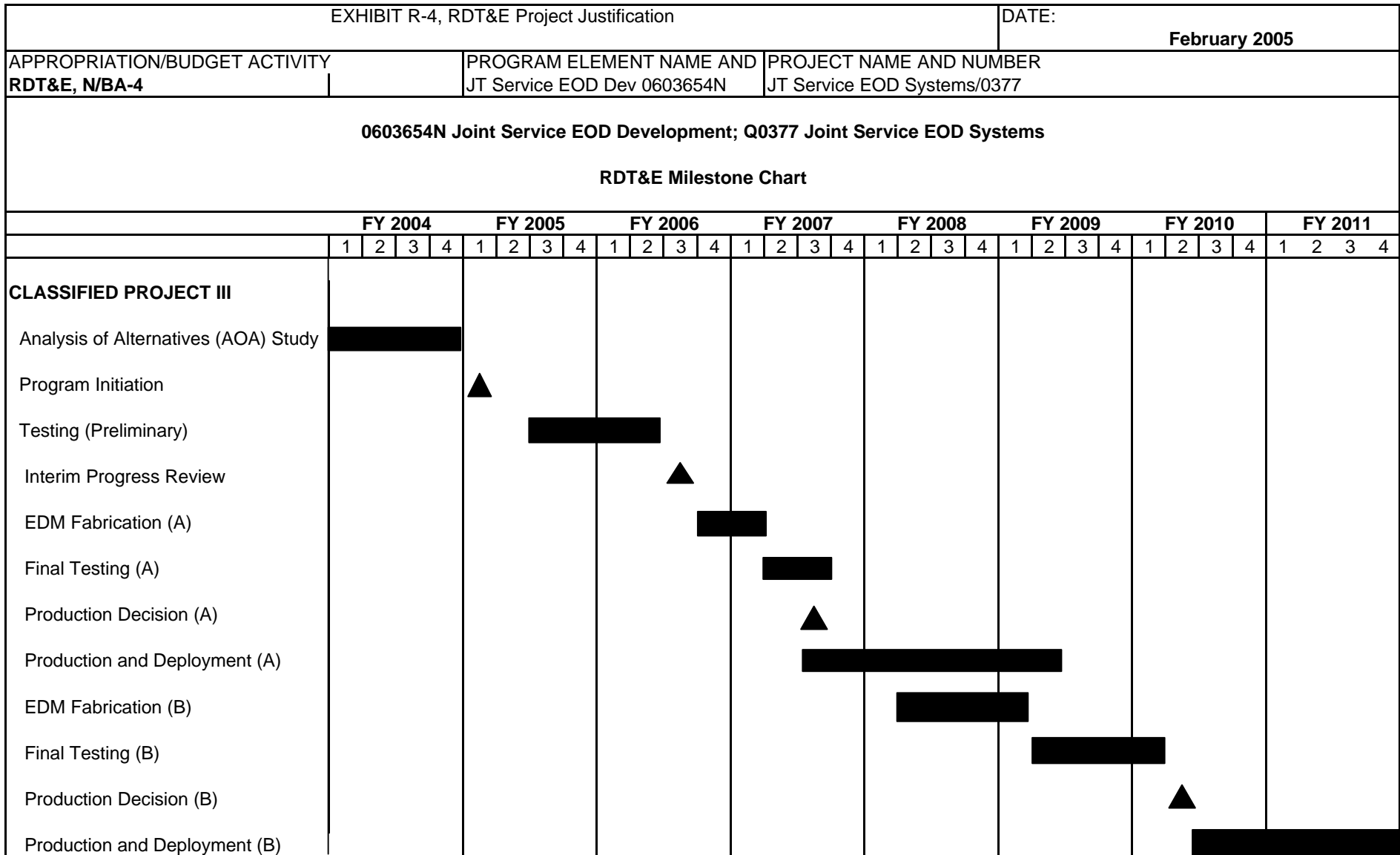
CLASSIFICATION:

EXHIBIT R-4, RDT&E Project Justification																								DATE:								
February 2005																																
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND NUMBER										PROJECT NAME AND NUMBER																	
RDT&E, N/BA-4					JT Service EOD Dev 0603654N										JT Service EOD Systems/0377																	
0603654N Joint Service EOD Development; Q0377 Joint Service EOD Systems																																
RDT&E Milestone Chart																																
FY 2004					FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
JOINT SERVICE IED CM																																
Analysis of Alternatives (AOA)																																
Milestone B																																
System Development and Demonstration (LAND)																																
Testing (LAND)																																
Milestone C (LAND)																																
AOA Validation (VEHICLE)																																
Milestone B																																
Development (VEHICLE)																																

R-1 SHOPPING LIST- ITEM NO. 59

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CLASSIFICATION:



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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-4	PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems			
CLASSIFIED PROJECT II	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Testing (DT-II)	1Q-3Q							
Production Decision		1Q						
Production/Deliveries			1Q-4Q	1Q-4Q	1Q-4Q			
LARGE IED ACCESS & DISRUPTION								
Testing (DEV)	1Q-4Q	1Q						
Production Decision (DEV)		3Q						
Production	3Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q				
NON-INVASIVE FILLER ID								
Testing (Preliminary)	1Q-2Q							
Testing (Final)	3Q-4Q	1Q-2Q						
Production Decision		3Q						
Production		3Q-4Q	1Q-4Q	1Q-2Q				
EOD MAN PORTABLE ROBOTIC SYSTEM								
Testing (Preliminary)	1Q-2Q							
Testing (Final)	3Q-4Q	1Q						
Production Decision		2Q						
Production		2Q-4Q	1Q-4Q	1Q-2Q				
Block Upgrade (DEV)		4Q	1Q-4Q	1Q-2Q				
Block Upgrade (PROD)			4Q	1Q-4Q	1Q-2Q			

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UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
						February 2005		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E,N/ BA-4	0603654N/Joint Service EOD Development				0377/Joint Service EOD Systems			
SUBMUNITIONS CLEARANCE	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Testing (Preliminary)	2Q-3Q							
Testing (Final)	4Q	1Q						
Production Decision		2Q						
Production		2Q-4Q	1Q-4Q	1Q-4Q				
JLONS								
Milestone B		3Q						
System Development and Demonstration		3Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q			
Milestone C					4Q			
Production and Deployment					4Q	1Q-4Q	1Q-4Q	1Q-4Q
Block Improvement (DEV)						2Q-4Q	1Q-3Q	
LOW ORDER TOOLS								
Analysis of Alternatives (AOA) Study	1Q							
EOD DECISION SUPPORT SYSTEM								
Program Initiation			1Q					
Initial Test Phase			2Q-3Q					
Initial Production Decision			3Q					
Production			3Q-4Q	1Q				
Increment I (DEV)			3Q-4Q	1Q-4Q	1Q-2Q			
Increment I (PROD)				3Q-4Q	1Q-4Q			
Increment II (DEV)					1Q-4Q	1Q-4Q		
Increment II (PROD)						1Q-4Q	1Q-2Q	
Increment III (DEV)						3Q-4Q	1Q-4Q	1Q-2Q
Increment III (PROD)							3Q-4Q	1Q-4Q

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-4	PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 0377/Joint Service EOD Systems			
ADVANCED ORDNANCE LOCATOR	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Program Initiation				3Q				
Development				3Q-4Q	1Q-4Q	1Q-3Q		
Testing						4Q	1Q-3Q	
Production Decision							3Q	
Production							4Q	1Q-4Q
JOINT SERVICE IED CM								
Analysis of Alternatives (AOA) Study			1Q-4Q	1Q-2Q				
Milestone B				3Q				
System Development and Demonstration (LAND)				4Q	1Q-2Q			
Testing (LAND)					3Q-4Q			
Milestone C (LAND)						1Q		
AOA Validation (VEHICLE)							1Q-2Q	
Milestone B (VEHICLE)							3Q	
Development (VEHICLE)							4Q	1Q-4Q
CLASSIFIED PROJECT III								
Program Initiation								
Analysis of Alternatives (AOA) Study	1Q-4Q							
Program Initiation		1Q						
Testing (Preliminary)		3Q-4Q	1Q-2Q					
Interim Progress Review			3Q					
EDM Fabrication (A)			3Q-4Q	1Q-2Q				
Final Testing (A)				2Q-3Q				
Production Decision (A)				3Q				
Production and Deployment (A)				3Q-4Q	1Q-4Q	1Q-2Q		
EDM Fabrication (B)					2Q-4Q	1Q		
Final Testing (B)						2Q-4Q	1Q	
Production Decision (B)							2Q	
Production and Deployment (B)							2Q-4Q	1Q-4Q

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 1317/EOD Diving Systems			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	7.634	2.400	2.296	2.764	2.815	2.810	2.866	2.920
RDT&E Articles Qty	Various	Various	Various	Various	Various	Various	Various	Various
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides for development of diving equipment and explosive charges to support Explosive Ordnance Disposal (EOD) underwater operations. The equipment must have inherently low acoustic and magnetic signatures in order to allow the EOD technician to safely approach, render-safe, and dispose of sea mines and other underwater ordnance.								

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 1317/EOD Diving Systems		
(U) B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.450	0.649	0.394	1.200
RDT&E Articles Quantity	Various	Various	Various	Various
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"></div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.645	0.196	0.500	0.058
RDT&E Articles Quantity	Various	Various	Various	Various
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"></div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.313	0.000	0.250	0.100
RDT&E Articles Quantity	Various	Various	Various	Various
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"></div>				

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 1317/EOD Diving Systems																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>4.523</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	4.523	0.000	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	4.523	0.000	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															
<div style="border: 1px solid black; padding: 5px;"> <p>Develop, test, and gain approval for fleet use of specialized equipment to support the Very Shallow Water Mine Countermeasures mission and CNO approved VSW MCM Detachment (USN/USMC). This also includes the development of small, affordable MCM Unmanned Underwater Vehicles.</p> <p>*Starting in FY05, this effort has been moved to Program Element 0603654N Project Q4023.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.523</td> <td>1.555</td> <td>1.152</td> <td>1.406</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.523	1.555	1.152	1.406	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.523	1.555	1.152	1.406															
RDT&E Articles Quantity	Various	Various	Various	Various															
<div style="border: 1px solid black; padding: 5px;"> <p>Develop a New Underwater Breathing Apparatus (NUBA) (formally known as Advanced Underwater Breathing Apparatus (UBA)) to improve underwater air and breathing capabilities. Develop a Diver Hull Inspection Navigation System to improve current capabilities in existing hull search operations.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.180</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.180	0.000	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.180	0.000	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															
<div style="border: 1px solid black; padding: 5px;"> <p>Demonstrate operation of a UUV-based capability package for standoff, multiple MCM operations from surface MCM platforms (e.g., MHC, HSV, etc.)</p> <p>*Starting in FY05 this effort has been moved to Program Element 0603654N, Project Q4024.</p> </div>																			

R-1 SHOPPING LIST - Item No. 59

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 1317/EOD Diving Systems																																																				
<p>(U) C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: right;">FY 2004</th> <th style="text-align: right;">FY 2005</th> <th style="text-align: right;">FY 2006</th> <th style="text-align: right;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>(U) Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(FY 05 President Controls):</td> <td style="text-align: right;">7.665</td> <td style="text-align: right;">2.456</td> <td style="text-align: right;">2.296</td> <td style="text-align: right;">2.771</td> </tr> <tr> <td>Current BES/President's Budget</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(FY06 President Controls):</td> <td style="text-align: right;">7.634</td> <td style="text-align: right;">2.400</td> <td style="text-align: right;">2.296</td> <td style="text-align: right;">2.764</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.031</td> <td style="text-align: right; border-top: 1px solid black;">-0.056</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">-0.007</td> </tr> <tr> <td>Summary of Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Miscellaneous Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.031</td> <td style="text-align: right; border-top: 1px solid black;">-0.056</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">-0.007</td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.031</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.056</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.007</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Schedule:</p> <p>Production decision for NUBA slipped from FY05 4th QTR to FY06 3RD QTR due to additional manned UBA safety testing. Diver Hull Navigation Production Decision slipped from FY06 3QTR to FY07 1st QTR due to required additional testing.</p> <p style="margin-top: 20px;">(U) Technical:</p> <p>Not applicable.</p>						FY 2004	FY 2005	FY 2006	FY 2007	(U) Funding:					Previous President's Budget					(FY 05 President Controls):	7.665	2.456	2.296	2.771	Current BES/President's Budget					(FY06 President Controls):	7.634	2.400	2.296	2.764	Total Adjustments	-0.031	-0.056	0.000	-0.007	Summary of Adjustments					Miscellaneous Adjustments	-0.031	-0.056	0.000	-0.007	Subtotal	-0.031	-0.056	0.000	-0.007
	FY 2004	FY 2005	FY 2006	FY 2007																																																		
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Subtotal	-0.031	-0.056	0.000	-0.007																																																		

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:		
								February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME				
RDT&E, N / BA-4			0603654N/Joint Service EOD Development			1317/EOD Diving Systems				
(U) D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
OPN 0975	5050	3309	6408	4985	3604	3331	3039	3305	Continuing	Continuing
PANMC 0340				1773		1749		2598		
(U) E. ACQUISITION STRATEGY: *										
Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.										
<p>* Not required for Budget Activities 1,2,3, and 6</p> <p>** Required for DON and OSD submit only.</p>										

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 1317/EOD Diving Systems									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract		
Primary Hardware Development	WX	EODTD, IH, MD	30.134	3.728	10/03	1.394	10/04	0.441	10/05	0.850	10/06	Continuing	Continuing			
Software Development	WX	EODTD, IH, MD	1.541	0.250	10/03	0.147	10/04	0.254	10/05	0.500	10/06	Continuing	Continuing			
Systems Engineering	WX	EODTD, IH, MD	7.705	0.400	10/03	0.123	10/04	0.000	10/05	0.000	10/06	Continuing	Continuing			
ILS	WX	EODTD, IH, MD	11.567	0.300	10/03	0.049	10/04	0.000	10/05	0.000	10/06	Continuing	Continuing			
Systems Engineering	WX	NSWC, PC						0.190	10/05	0.190	10/06	Continuing	Continuing			
Systems Engineering	WX	SPAWAR						0.400	10/05	0.200	10/06	Continuing	Continuing			
													0.000			
													0.000			
													0.000			
													0.000			
													0.000			
Subtotal Product Development			50.947	4.678		1.713		1.285		1.740		0.000	60.363			
Remarks:																
Program Management Support	C/CPFF	EDO, Alex, VA	3.537									0.000	3.537			
Program Management Support	C/CPFF	EDO, Alex, VA	0.000	0.500	10/03	0.123	10/04	0.350	10/05	0.258	10/06	Continuing	Continuing			
Integrated Logistics Support													0.000			
Configuration Management													0.000			
Technical Data													0.000			
GFE													0.000			
Award Fees													0.000			
Subtotal Support			3.537	0.500		0.123		0.350		0.258		0.000	4.768			
Remarks:																

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE:		DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 1317/EOD Diving Systems								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation	WX	EODTD, IH, MD	3.470	0.550	10/03	0.147	10/04	0.050	10/05	0.000	10/06	Continuing	Continuing		
Operational Test & Evaluation	WX	EODTD, IH, MD	1.560										1.560		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
Subtotal T&E			5.030	0.550		0.147		0.050		0.000		0.000	5.777		
Remarks:															
Program Management Support	WX	EODTD, IH, MD	6.117	0.800	10/03	0.221	10/04	0.275	10/05	0.360	10/06	Continuing	Continuing		
Miscellaneous	WX	Various	4.625	1.106	10/03	0.196	10/04	0.336	10/05	0.406	10/06	Continuing	Continuing		
													0.000		
													0.000		
													0.000		
Subtotal Management			10.742	1.906		0.417		0.611		0.766		0.000	14.442		
Remarks:															
Total Cost			70.256	7.634		2.400		2.296		2.764		0.000	85.350		
Remarks:															

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE:																
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NAME AND NUMBER								PROJECT NAME AND NUMBER																
RDT&E, N/BA-4								JT Service EOD Dev 0603654N								1317/EOD Diving Systems																
0603654N Joint Service EOD Development; 1317 EOD Diving Systems																																
RDT&E Milestone Chart																																
FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MICRO DIVER DISPLAY																																
Testing																																
Production Decision																																
Production																																
ADVANCED U/W LIMPET MINE																																
Testing																																
Production Decision																																
Production																																
ADV MINI MINE ID SENSOR (UIS PIP)																																
Testing																																
Production Decision																																
Production																																
ACOUSTIC FIRING SYSTEM (PIP)																																
Testing																																
Production Decision																																
Production																																

R-1 SHOPPING LIST - ITEM NO. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE: February 2005															
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NAME AND								PROJECT NAME AND NUMBER																			
RDT&E, N/BA-4				JT Service EOD Dev 0603654N								1317/EOD Diving Systems																			
0603654N Joint Service EOD Development; 1317 EOD Diving Systems																															
RDT&E Milestone Chart																															
FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
UIS PIP Testing Production Decision Production																															
DIVER HULL NAVIGATION Testing Production Decision Production																															
NEW U/W Breathing Apparatus (NUBA) Testing Production Decision Production																															
DIVER AMPHIBIOUS NEUTRALIZATION SYSTEM Testing Production Decision Production																															

R-1 SHOPPING LIST - ITEM NO. 59

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
						February 2005		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E,N/ BA-4	0603654/Joint Service EOD Development				1317/EOD Diving Systems			
	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
MICRO DIVER DISPLAY								
Testing	1Q							
Production Decision	2Q							
Production	3Q-4Q	1Q-4Q	1Q					
ADVANCED U/W LIMPET MINE								
Testing	1Q-4Q	1Q-2Q						
Production Decision		3Q						
Production		4Q	1Q-4Q					
ADV MINI MINE ID SENSOR (UIS PIP)								
Testing	1Q-4Q							
Production Decision	4Q							
Production		2Q-4Q	1Q-2Q					
ACOUSTIC FIRING SYSTEM (PIP)								
Testing			1Q-4Q	1Q-2Q				
Production Decision				3Q				
Production					1Q-4Q	1Q-3Q		
UIS PIP								
Testing				4Q	1Q-4Q	1Q-4Q	1Q-2Q	
Production Decision							3Q	
Production							4Q	1Q-4Q
DIVER HULL NAVIGATION								
Testing		1Q-4Q	1Q-4Q	1Q				
Production Decision				1Q-2Q				
Production				2Q-4Q	1Q-4Q	1Q-4Q		

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME			
RDT&E, N / BA-4	0603654N/Joint Service EOD Development				4023/EOD VSW MCM/Force Protection UUV			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	4.521	9.796*	8.491	6.240	5.473	4.730	4.158	4.249
RDT&E Articles Qty	Various	Various	Various	Various	Various	Various	Various	Various
* Includes a \$3.4M Congressional Add for Magneto-Inductive Technology								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
Provides for development of small affordable, Unmanned Underwater Systems to support Explosive Ordnance Disposal (EOD) and Naval Special Clearance Team mission operations. The equipment must be highly portable in order to support the EOD technician to safely approach, render-safe, and dispose of sea mines and other underwater ordnance. Provides support for the Navy's high priority mission of Very Shallow Water (VSW) mine countermeasures, including clandestine reconnaissance and mine clearance in support of amphibious operations. Development of EOD UUV systems to support localization render-safe and detailed intelligence gathering of UXO including Underwater Improvised Explosive Devices.								

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td>6.396</td> <td>8.491</td> <td>6.240</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost		6.396	8.491	6.240	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		6.396	8.491	6.240															
RDT&E Articles Quantity	Various	Various	Various	Various															
<div style="border: 1px solid black; padding: 5px;"> <p>This program supports development, testing and fleet approval for evolving generations of small, affordable UUV's to address validated fleet requirements in support of Explosive Ordnance Disposal and Naval Special Clearance missions areas.</p> <p>*Starting in FY05 effort was moved from Program Element 0603654N, Project Q1317.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>4.521</td> <td>3.400</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	4.521	3.400	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	4.521	3.400	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															
<div style="border: 1px solid black; padding: 5px;"> <p>This Program supports development, testing and fleet approval for Magneto-Inductive technology used to transmit commands to remotely placed receivers that are connected to explosive mission packages and tools associated with Naval Special Clearance Team missions in the Very Shallow Water zone.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															
<div style="border: 1px solid black; height: 80px; width: 100%;"></div>																			

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																			
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV																																																				
<p>(U) C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: right;">FY 2004</th> <th style="width: 10%; text-align: right;">FY 2005</th> <th style="width: 10%; text-align: right;">FY 2006</th> <th style="width: 10%; text-align: right;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>(U) Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(FY 05 President Controls):</td> <td style="text-align: right;">4.675</td> <td style="text-align: right;">6.458</td> <td style="text-align: right;">6.565</td> <td style="text-align: right;">4.705</td> </tr> <tr> <td>Current BES/President's Budget</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(FY06 President Controls):</td> <td style="text-align: right;">4.521</td> <td style="text-align: right;">9.796</td> <td style="text-align: right;">8.491</td> <td style="text-align: right;">6.240</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.154</td> <td style="text-align: right; border-top: 1px solid black;">3.338</td> <td style="text-align: right; border-top: 1px solid black;">1.926</td> <td style="text-align: right; border-top: 1px solid black;">1.535</td> </tr> <tr> <td>Summary of Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Miscellaneous Adjustment</td> <td style="text-align: right; border-top: 1px solid black;">-0.154</td> <td style="text-align: right; border-top: 1px solid black;">-0.062</td> <td style="text-align: right; border-top: 1px solid black;">1.926</td> <td style="text-align: right; border-top: 1px solid black;">1.535</td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-0.154</td> <td style="text-align: right; border-top: 1px solid black;">-0.062</td> <td style="text-align: right; border-top: 1px solid black;">1.926</td> <td style="text-align: right; border-top: 1px solid black;">1.535</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Schedule:</p> <p style="margin-top: 20px;">As a result of EOD Unmanned Underwater Vehicles Analysis of Alternatives study team and the requirements working group the 4th generation UUV production decision is now integrated with Spiral CIP of 1st generation (Search Classify and Map) program . The 2nd Generation UUV (require and ID) IOC production decision is adjusted from FY06 3rd QTR to FY07 1st QTR due to fleet availability to conduct UOES and extended technical testing. The 3rd Generation Neutralization preliminary operational capability is adjusted from FY08 3rd QTR to FY09 1st QTR due to projected production time extended. Added is the milestone schedule for the Magneto-Inductive technology Congressional Add.</p> <p style="margin-top: 20px;">(U) Technical:</p> <p style="margin-left: 20px;">Not applicable.</p>						FY 2004	FY 2005	FY 2006	FY 2007	(U) Funding:					Previous President's Budget					(FY 05 President Controls):	4.675	6.458	6.565	4.705	Current BES/President's Budget					(FY06 President Controls):	4.521	9.796	8.491	6.240	Total Adjustments	-0.154	3.338	1.926	1.535	Summary of Adjustments					Miscellaneous Adjustment	-0.154	-0.062	1.926	1.535	Subtotal	-0.154	-0.062	1.926	1.535
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Subtotal	-0.154	-0.062	1.926	1.535																																																		

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV				

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
OPN 0975	0	2305	4124	11512	6460	2774	2760	2828	Continuing	Continuing

(U) E. ACQUISITION STRATEGY: *

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisitions strategies of the most cost-effective solution over the subprojects' life -cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modifications), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required is always competitive and when feasible, production options are included. This ongoing program capitalizes on a user operational evaluation system (UOES) effort involving Fleet operators engaged in tactical experimentation with prototype UUVs. These UUV operators also participate in detailed requirements analyses and definition. A preliminary operational capability with UUV will be realized at the Naval Special Clearance Team One (NSCT-1), with a competitive acquisition strategy to field a more robust and capable first generation S-C-M system. The addition of mine reacquisition and identification (RI) capabilities to the VSW MCM UUV toolbox is programmed, for delivery. Further improvements to the toolbox to add basic mine neutralization capabilities will then be pursued. EOD UUV systems providing capability to localize, Render Safe & gather detailed intelligence of UXO is programmed for acquisition.

(U) F. MAJOR PERFORMERS: **

* Not required for Budget Activities 1,2,3, and 6

** Required for DON and OSD submit only.

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	WX	EODTD, IH, MD	0.000	3.922	10/03	3.088	10/04	2.940	10/05	1.998	10/06	Continuing	Continuing		
Systems Engineering	WX	EODTD, IH, MD	0.000	0.000	10/03	3.228	10/04	2.849	10/05	1.970	10/06	Continuing	Continuing		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
Subtotal Product Development			0.000	3.922		6.316		5.789		3.968		0.000	19.995		
Remarks:															
Program Management Support	C/CPFF	EDO, Alex, VA	0.000	0.300	10/03								0.300		
Program Management Support	C/CPFF	EDO, Panama City FL	0.000			0.990	10/04	0.712	10/05	0.616	10/06	Continuing	Continuing		
Training Development													0.000		
Integrated Logistics Support													0.000		
Configuration Management													0.000		
Technical Data													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Support			0.000	0.300		0.990		0.712		0.616		0.000	2.618		
Remarks:															

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 4023/EOD VSW MCM/Force Protection UUV							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	EODTD, IH, MD	0.000	0.000	10/03	1.710	10/04	1.180	10/05	0.986	10/06	Continuing	Continuing	
Operational Test & Evaluation	WX	EODTD, IH, MD	0.000	0.000	10/03	0.290	10/04	0.290	10/05	0.252	10/06	Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal T&E			0.000	0.000		2.000		1.470		1.238		0.000	4.708	
Remarks:														
Program Management Support	WX	EODTD, IH, MD	0.000	0.000	10/03	0.490	10/04	0.370	10/05	0.310	10/06	Continuing	Continuing	
Miscellaneous	WX	Various	0.000	0.299	10/03	0.000	10/04	0.150	10/05	0.108	10/06	Continuing	Continuing	
													0.000	
													0.000	
													0.000	
													0.000	
Subtotal Management			0.000	0.299		0.490		0.520		0.418		0.000	1.727	
Remarks:														
Total Cost			0.000	4.521		9.796		8.491		6.240		0.000	29.048	
Remarks:														

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE: <div>February 2005</div>															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-4				PROGRAM ELEMENT NAME AND JT Service EOD Dev 0603654N								PROJECT NAME AND NUMBER 4023/EOD VSW MCM/Force Protection UUV																			
0603654N Joint Service EOD Development; 4023 EOD VSW MCM/Force Prtoection UUV																															
RDT&E Milestone Chart																															

R-1 SHOPPING LIST - ITEM NO. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE: February 2005																							
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NAME AND NUMBER										PROJECT NAME AND NUMBER																								
RDT&E, N/BA-4					JT Service EOD Dev 0603654N										4023/EOD VSW MCM/Force Protection UUV																								
0603654N Joint Service EOD Development; 4023/EOD VSW MCM/Force Protection UUV																																							
RDT&E Milestone Chart																																							
FY 2004					FY 2005					FY 2006					FY 2007					FY 2008					FY 2009					FY 2010					FY 2011				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
3rd Generation (Neutralization)																																							
Analysis of Alternatives (AOA) Study																																							
Requirements Definition																																							
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Prototype Development																																							
Testing Final																																							
Production Decision (1st Generation)																																							
Preliminary Operational Capability																																							
Production																																							
Spiral CIP																																							
Magneto-Inductive																																							
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Requirements Definition																																							
Prototype Development																																							
Final Testing																																							
Production Decision																																							
IOC Production																																							
Spiral CIP																																							

R-1 SHOPPING LIST - ITEM NO. 59

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E,N/ BA-4	0603654/Joint Service EOD Development				4023/EOD VSW MCM/Force Protection UUV			
	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1st Generation Small UUV (Search, Classify & Map)								
IOC Prototype Development	1Q-2Q							
Testing Final	3Q-4Q	1Q-2Q						
Production Decision		3Q						
Production		3Q-4Q	1Q-3Q					
Spiral CIP			3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
2nd Generation (Require and ID)								
UOES Operational Eval System	2Q-4Q	1Q						
Preliminary Operational Capability		3Q						
IOC Prototype Development		2Q-4Q	1Q-2Q					
IOC Testing			3Q-4Q	1Q				
IOC Production Decision				1Q				
IOC Production				2Q-4Q	1Q-3Q			
Spiral CIP				3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
3rd Generation (Neutralization)								
Analysis of Alternatives (AOA) Study	1Q-3Q							
Requirements Definition	1Q-3Q							
UOES Operational Eval System	4Q	1Q-4Q	1Q-2Q					
Protype Development			2Q-4Q	1Q-2Q				
Testing Final				2Q-3Q				
Production Decision (1st Generation)				4Q				
Preliminary Operational Capability				4Q				
Production				4Q	1Q-4Q	1Q		
Spiral CIP					3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Magneto-Inductive								
Analysis of Alternatives (AOA) Study	1Q-3Q							
Requirements Definition	1Q-4Q	1Q						
Protype Development		2Q-4Q	1Q-4Q	1Q-4Q	1Q			
Final Testing					1Q-3Q			
Production Decision					3Q			
IOC Production						1Q-4Q	1Q-3Q	
Spiral CIP							2Q-4Q	1Q-4Q

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME			
RDT&E, N / BA-4		0603654N/Joint Service EOD Development			4024/SMCM Shallow and Deep Water UUV			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.000	1.778	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	Various	Various	Various	Various	Various	Various	Various	Various
Current BES/President's Budget								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
Provides for development of Small Low Cost Unmanned Underwater Vehicles to support dedicated mine countermeasures operations. The UUV systems must have a small deployment footprint for rapid employment abroad various SMCM platforms. Equipment includes Launch Recovery Sub-Systems and associated systems support equipment.								

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 4024/SMCM Shallow and Deep Water UUV																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 25%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>1.778</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table> <p style="text-align: center; margin: 0;">Current BES/President's Budget</p> <div style="border: 1px solid black; padding: 10px; min-height: 100px;"> <p>Demonstrate operation of a UUV-based capability package for standoff, multiple MCM operations from surface MCM platforms (e.g., MHC, HSV, etc.)</p> <p>*Starting in FY06 effort excuted in Program Element 0603502N, Project 3123 SMCM Shallow & Deep Water UUV.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	1.778	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	1.778	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 25%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table> <div style="border: 1px solid black; height: 70px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 25%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td>Various</td> <td>Various</td> <td>Various</td> <td>Various</td> </tr> </table> <div style="border: 1px solid black; height: 70px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity	Various	Various	Various	Various
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity	Various	Various	Various	Various															

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development	PROJECT NUMBER AND NAME 4024/SMCM Shallow and Deep Water UUV		

(U) C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
(U) Funding:				
Previous President's Budget				
(FY 05 President Controls):	0.000	1.794	1.064	1.765
Current BES/President's Budget				
(FY06 President Controls):	0.000	1.778	0.000	0.000
Total Adjustments	0.000	-0.016	-1.064	-1.765
Summary of Adjustments				
Miscellaneous Adjustment		-0.016	-1.064	-1.765
Subtotal	0.000	-0.016	-1.064	-1.765

(U) Schedule:

Not Applicable

(U) Technical:

Not applicable.

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603654N/Joint Service EOD Development			PROJECT NUMBER AND NAME 4024/SMCM Shallow and Deep Water UUV			

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
<p>(U) E. ACQUISITION STRATEGY: *</p> <p>Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new projects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.</p> <p>The Surface Mine Countermeasures (SMCM) UUV program began in FY04 with a two-year experimentation phase involving Fleet Mine Warfare operators engaged in tactical experimentation with prototype UUVs operating from Surface MCM platforms. The focus of this program is to increase the current capabilities of Surface MCM ships while reducing the overall risk to MCM forces. During this two-year initiatives, these UUV Fleet operators will develop tactics for employing UUV systems from SMCM platforms along with operational requirements. Upon completion of the two-year experimentation phase, a competitive acquisition strategy will begin to field a more capable and robust first generation system.</p>										

* Not required for Budget Activities 1,2,3, and 6

** Required for DON and OSD submit only.

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)												DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 4024/SMCM Shallow and Deep Water UUV								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	WX	EODTD, IH, MD	0.000			1.513	10/04					Continuing	Continuing		
Software Development													0.000		
Systems Engineering													0.000		
ILS													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
Subtotal Product Development			0.000	0.000		1.513		0.000		0.000		0.000	1.513		
Remarks:															
Program Management Support	C/CFF	EDO, Alex, VA	0.000										0.000		
Program Management Support	C/CFF	EDO, Alex, VA	0.000									Continuing	Continuing		
Training Development													0.000		
Integrated Logistics Support													0.000		
Configuration Management													0.000		
Technical Data													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)												DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603654N/Joint Service EOD Development				PROJECT NUMBER AND NAME 4024/SMCM Shallow and Deep Water UUV								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation	WX	EODTD, IH, MD	0.000									Continuing	Continuing		
Operational Test & Evaluation	WX												0.000		
													0.000		
													0.000		
													0.000		
													0.000		
													0.000		
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															
Program Management Support	WX	EODTD, IH, MD	0.000	0.000		0.103	10/04					Continuing	Continuing		
Miscellaneous	WX	Various	0.000	0.000		0.162	10/04					Continuing	Continuing		
													0.000		
													0.000		
													0.000		
													0.000		
Subtotal Management			0.000	0.000		0.265		0.000		0.000		0.000	0.265		
Remarks:															
Total Cost			0.000	0.000		1.778		0.000		0.000		0.000	1.778		
Remarks:															

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																DATE: February 2005																							
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NAME AND								PROJECT NAME AND NUMBER																											
RDT&E, N/BA-4				JT Service EOD Dev 0603654N								4024/SMCM Shallow and Deep Water UUV																											
0603654N Joint Service EOD Development; 4024 SMCM Shallow and Deept Water UUV																																							
RDT&E Milestone Chart																																							
FY 2004				FY 2005				FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
SMCM Shallow & Deept Water UUV Notional CONOPS (AOA) Study Requirements Definition																																							

R-1 SHOPPING LIST - ITEM NO. 59

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 59

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:		
							February 2005		
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE				
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					0603658N Cooperative Engagement Capability				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete
Total PE Cost	86.996	102.150	88.135	59.881	56.724	56.968	58.274	55.597	Cont.
2039/Cooperative Engagement Capability (CEC)	\$72.301	\$102.150	\$88.135	\$59.881	\$56.724	\$56.968	\$58.274	\$55.597	Cont.
2616/Battlegroup Interoperability Issues	\$14.695	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	
Defense Emergency Response Funds (DERF) Funds: Not Applicable.									
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:									
<p>Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture capable of fire control quality. CEC distributes sensor data from each ship and aircraft, or cooperating unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system. CEC significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.</p> <p>CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and Combat System modifications. The DDS encodes and distributes ownship sensor and engagement data and is a high capacity, jam resistant, directive system providing a precision gridlocking and high throughput of data. The CEP is a high capacity distributed processor that is able to process force levels of data in near real-time. This data is passed to the ship's combat system as high quality data for which the ship can cue its onboard sensors or use the data to engage targets without actually tracking them.</p> <p>The Navy has begun implementation of a Pre-Planned Product Improvement (P3I) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This P3I approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, comms independence, JTRS compliancy, and Global Information Grid (GIG) horizontal fusion initiatives. P3I will provide hardware which complies with Category 3 Open Architecture Core Environment (OACE) standards with rehosted existing software, which will be fielded fleet-wide to allow affordable replacement of obsolete computing system components and eliminate dependencies on "closed" equipment, operating systems, and middleware.</p> <p>Additionally, CEC is working with the Joint SIAP System Engineering Organization (JSSEO) to engineer a sensor measurement fusion and track management algorithm set of solutions which is viable for all Services to implement toward achieving optimum interoperability across the battlespace. This effort supports re-architecting of battleforce functionality in order to support the Navy's Open Architecture functional architecture which establishes a common functional framework across Navy programs and platforms to reduce development cost by promoting software reuse. This architecture promotes interoperability by allowing functionality to be consistently engineered across the battleforce. This product, the JTM (Joint Track Manager) is derived through a Model Driven Architecture (MDA) approach through a series of PIM (Platform Independent Model) and PSM (Platform Specific Model) deliveries which will include joint track management functionality including air, surface, ground, and sub-surface tracks. CEC will conduct a competition for selection of a System Integrator/Design Agent (SI/DA) to facilitate the development and integration of the JTM functionality across the applicable Navy Programs (e.g. DD(X), AHE).</p>									

R-1 SHOPPING LIST - Item No. 60

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 11)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability	PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	13.338	17.252	10.592	2.000
RDT&E Articles Quantity				
Development, integration and testing of computer program Baseline 2.1 with AEGIS CGs and DDGs, ACDS and SSDS equipped ships.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.600			
RDT&E Articles Quantity				
Single Integrated Air Picture (SIAP) improvements.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	10.800	3.300	7.570	13.146
RDT&E Articles Quantity				
E-2C HAWKEYE 2000 aircraft and CEC AN/USG-3 system integration and FOT&E-2 testing; system integration with E-2C Radar Modernization Program (RMP), and NIFC-CA integration.				

R-1 SHOPPING LIST - Item No. 60

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability	PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">1.162</td><td style="text-align: center;">1.200</td><td style="text-align: center;">1.300</td><td style="text-align: center;">1.500</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.162	1.200	1.300	1.500	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.162	1.200	1.300	1.500															
RDT&E Articles Quantity																			
Systems Engineering/Integration Agent (SE/IA) for development and execution of systems engineering processes by NSWG, Dahlgren.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">16.474</td><td style="text-align: center;">31.000</td><td style="text-align: center;">22.000</td><td style="text-align: center;">24.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	16.474	31.000	22.000	24.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	16.474	31.000	22.000	24.000															
RDT&E Articles Quantity																			
Execution of Systems Integration/Design Agent competition; Open Architecture Joint Track Manager PIM/PSM development, JTM PSM integration and test.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">20.000</td><td style="text-align: center;">36.000</td><td style="text-align: center;">29.500</td><td style="text-align: center;">3.100</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	20.000	36.000	29.500	3.100	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	20.000	36.000	29.500	3.100															
RDT&E Articles Quantity																			
P3I hardware and software efforts including DDS breakup and test, rehost of existing software on Open Architecture ACE CEP, comms independence efforts including antenna alternatives and JTRS compliancy, and mini terminal alternatives.																			

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability	PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues																	
B. Accomplishments/Planned Program (Cont.)																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	15.654	5.888	6.093	6.869															
RDT&E Articles Quantity																			
<div>CEC system improvements including enhanced communications, expansion of networking capability, development of system protection/multi-level secure operational-level secure operations, and Planar Array Active Antenna (PAAA).</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">2.000</td><td style="text-align: center;">2.000</td><td style="text-align: center;">4.000</td><td style="text-align: center;">2.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.000	2.000	4.000	2.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	2.000	2.000	4.000	2.000															
RDT&E Articles Quantity																			
<div>Participation in system interoperability exercises including the Joint Combat Identification Evaluation Team (JCIET) and Roving Sands, etc.</div>																			

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EXHIBIT R-2, RDT&E Project Justification		DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability	PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues																
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	FY 04	FY 05	FY 06	FY 07														
Accomplishments/Effort/Subtotal Cost	5.968	5.510	7.080	7.266														
RDT&E Articles Quantity																		
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Field activity support of CEC development efforts (I.e. In-Service Engineering, Integrated Logistics Support Planning) and program management support.</div>																		

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EXHIBIT R-2, RDT&E Project Justification			DATE: February 2005																																																																		
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<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 35%;"></th> <th style="text-align: right; width: 12.5%;">FY 2004</th> <th style="text-align: right; width: 12.5%;">FY 2005</th> <th style="text-align: right; width: 12.5%;">FY 2006</th> <th style="text-align: right; width: 12.5%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>President's Budget: (FY05 Pres Controls)</td> <td style="text-align: right;">86.725</td> <td style="text-align: right;">103.452</td> <td style="text-align: right;">114.010</td> <td style="text-align: right;">67.280</td> </tr> <tr> <td>Current President's Budget</td> <td style="text-align: right; border-top: 1px solid black;">86.996</td> <td style="text-align: right; border-top: 1px solid black;">102.150</td> <td style="text-align: right; border-top: 1px solid black;">88.135</td> <td style="text-align: right; border-top: 1px solid black;">59.881</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">.271</td> <td style="text-align: right; border-top: 1px solid black;">-1.302</td> <td style="text-align: right; border-top: 1px solid black;">-25.875</td> <td style="text-align: right; border-top: 1px solid black;">-7.399</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td>SBIR/STTR Transfer</td> <td style="text-align: right;">-2.145</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Programmatic Adjustments</td> <td></td> <td></td> <td style="text-align: right;">-25.300</td> <td style="text-align: right;">-7.043</td> </tr> <tr> <td>Execution Realignment</td> <td style="text-align: right;">2.677</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Miscellaneous Adjustments</td> <td></td> <td style="text-align: right;">-1.302</td> <td style="text-align: right;">-.575</td> <td style="text-align: right;">-.356</td> </tr> <tr> <td>Inflation</td> <td style="text-align: right;">-.080</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cancelled Accounts</td> <td style="text-align: right; border-top: 1px solid black;">-.181</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">.271</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">-1.302</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">-25.875</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 3px double black;">-7.399</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p>Accelerated deployment of USS NIMITZ Battle Group required replanning of Follow-on Test and Evaluation-2 (FOT&E) schedule of integrated CEC/E-2C HAWKEYE 2000 aircraft. FOT&E-2 tests were conducted and completed in April 2004. The COMOPTEVFOR report of testing is planned for release in August 2004.</p> <p style="margin-top: 20px;">Technical:</p> <p>CEC will collaborate with Single Integrated Air Picture (SIAP) Systems Engineering track management solution. P3I developments will address a smaller, cheaper, less power and cooling hardware solutions, including alternative communications and a lightweight antenna.</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					President's Budget: (FY05 Pres Controls)	86.725	103.452	114.010	67.280	Current President's Budget	86.996	102.150	88.135	59.881	Total Adjustments	.271	-1.302	-25.875	-7.399	Summary of Adjustments					SBIR/STTR Transfer	-2.145				Programmatic Adjustments			-25.300	-7.043	Execution Realignment	2.677				Miscellaneous Adjustments		-1.302	-.575	-.356	Inflation	-.080				Cancelled Accounts	-.181				Subtotal	.271	-1.302	-25.875	-7.399
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R-1 SHOPPING LIST - Item No. 60

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification								DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability			PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
RDT&E,N 0206313M	4.100	3.500	4.000	2.300	.900	.600			CONT	CONT
DD(X) 0604300N				8.500					CONT	CONT
APN 0195 (E-2C HAWKEYE 2000)					21.300				CONT	CONT
Procurement, Marine Corps 4640				1.000	6.000	6.000	12.000		CONT	CONT
OPN 2606 (CEC)	66.156	67.119	16.474	27.539	37.559	42.772	36.862	35.512	CONT	CONT
OPN 0960 (CG Modernization)			6.275	13.920	11.930	17.570	17.880	17.690	CONT	CONT
APN 0195 (E-2C Aircraft)	27.900	11.300				17.399	17.820	18.176	CONT	CONT
Various - SCN Procurement	20.705	6.592	18.510	7.167	28.922	22.340	40.388	30.767	CONT	CONT
									CONT	CONT

* Funding streams reflect only the CEC portion of each lines TOA.

E. ACQUISITION STRATEGY:

The realignment of track management functions with the SIAP SE approach and Navy Open Architecture, while competing System Integrator functions, and utilizing a Pre-planned Product Improvement (P3I) program in lieu of a CEC Block 2 development effort, has been approved by the Over-arching Integrated Product Team (OIPT). An acquisition strategy has been approved to reflect this approach and allow for multiple industry participants and focus on joint initiative involvement.

F. MAJOR PERFORMERS:

Raytheon Systems Company, St. Petersburg, FL Development of AN/USG-2 (shipboard) and AN/USG-3 (airborne) equipment and support of testing.
 Johns Hopkins University, Applied Physics Laboratory, Laurel, MD Technical Design Agent for AN/USG-2 and AN/USG-3 equipment and support of testing.
 Northrop-Grumman Corporation, Bethpage, LI, NY Integration of AN/USG-3 equipment with E-2C HAWKEYE 2000 and Advanced HAWKEYE aircraft.
 Naval Surface Weapons Center, Dahlgren, VA Software Support Activity (SSA) and Systems Engineering/Integration Agent (SE/IA).

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Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603658N Cooperative Engagement Capability			2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
AN/USG-2/3 Development	CPAF	Raytheon, St. Petersburg, FL	571.853	18.921	Oct-03	8.426	Oct-04	9.145	Oct-05	7.583	Oct-06	Continuing	Continuing	TBD	
AN/USG-2/3 Development	CPAF	Award Fees	85.393	2.803	Oct-03	1.248	Oct-04	1.355	Oct-05	1.176	Oct-06	Continuing	Continuing	TBD	
AN/USG-2/3 Development/TDA	CPFF	JHU/APL, Laurel, MD	236.866	7.742	Oct-03	8.000	Oct-04	6.000	Oct-04	4.000	Oct-06	Continuing	Continuing	TBD	
Block 2 Development/Competition	CPAF	Various	11.000									Continuing	Continuing	TBD	
Track Management	TBD	Various		12.000	Oct-03	20.000	Oct-04	28.000	Oct-05	24.000	Oct-06	Continuing	Continuing	TBD	
P3I	TBD	Various		20.000	Oct-03	36.000	Oct-04	23.500	Oct-05	3.100	Oct-06	Continuing	Continuing	TBD	
E-2C/AHE Aircraft Integration	CPAF	Northrop-Grumman, LI., NY	183.408	2.000	Oct-03	3.300		3.990		7.422	Oct-06		200.120	200.120	
NIFC-CA Integration	TBD	Various						3.580		6.950	Oct-06	Continuing	Continuing	TBD	
Tactical Component Network (TCN)	CPFF	Various	14.576										14.576	14.576	
P-3 Aircraft Integration	CPAF	Lockheed-Martin	40.377										40.377	40.377	
Baseline 2.2 Development	CPAF	Lockheed-Martin	11.881										11.881	11.881	
Space Based IR Sensors (SBIRS)	CPAF	Lockheed-Martin	12.843										12.843	12.843	
Modeling & Simulation	PD	PMS-456	5.261									Continuing	Continuing	TBD	
In-Service Engineering Activity	WX	NSWC, Port Hueneme, CA	18.432	2.527	Oct-03	2.285	Oct-04	3.000	Oct-05	2.000	Oct-06	Continuing	Continuing	TBD	
Land Based Test Network	PD	SPAWAR (PMW-159)	1.302										1.302	1.302	
Land Based Test Network	PD	NATC, Patuxent River, MD	.957										.957	0.957	
Software Support Activity	WX	NSWC, Dahlgren, VA	57.472	4.000	Oct-03	3.500	Oct-04	1.300	Oct-05	.800	Oct-06	Continuing	Continuing	TBD	
Antenna Redesign	RC	NSWC, Crane, IN	6.483										6.483	6.483	
Production Engineering Activity	WX	NSWC, Crane, IN	41.243	1.000	Oct-03	1.000	Oct-04	2.000	Oct-05	.500	Oct-06	Continuing	Continuing	TBD	
AEGIS Integration	CPAF	Lockheed-Martin	124.933										124.933	124.933	
SSDS/ACDS Integration	CPAF	Raytheon, San Diego, CA	39.871	4.474		11.000							55.345	39.871	
Area Air Def. Commander (AADC)	CPAF	General Dynamics	10.096										10.096	10.096	
SIAP Improvements	CPFF	JHU/APL, Laurel, MD		1.600	Oct-03								1.600	1.600	
Various	Various	Miscellaneous	85.700		Oct-03	.826	Various	1.003				Continuing	Continuing	TBD	
Subtotal Product Development			1,559.947	77.067		95.585		82.873		57.531		Continuing	Continuing	TBD	
Remarks:															

R-1 SHOPPING LIST - Item No. 60

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 8 of 11)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE:				February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME											
RDT&E, N / BA-4			0603658N Cooperative Engagement Capability			2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues											
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract			
Test Support	CPAF	Raytheon, St. Peters., FL	8.116	1.219	Oct-03	1.742	Oct-04	1.132	Oct-05	.435	Oct-06		12.644	12.644			
Test Support	CPAF	Award Fees	1.202	.181	Oct-03	.258	Oct-04	.168	Oct-05	.065	Oct-06		1.874	1.874			
Test Support	CPFF	JHU/APL, Laurel, MD	10.007	1.100	Oct-03	.800	Oct-04	.600	Oct-05	.300	Oct-06		12.807	12.807			
Test Support	WX	NRL, Washington, DC	6.352	1.230									7.582	7.582			
Test Support	WX	NSWC, Port Hueneme, CA	31.601	1.458	Oct-03	1.000	Oct-04	1.000	Oct-05	.400	Oct-06		35.459	35.459			
Air Operations Test Support	WX	NAVAIR (PMA-207)	6.009	1.450									7.459	7.459			
Test Data Reduction	WX	NWAS, Corona, CA	16.624	1.440	Oct-03	.800	Oct-04	.800	Oct-05	.800	Oct-06		20.464	20.464			
Various	Various	Various	92.024	1.283	Various	1.400	Various	1.012	Various		Various		95.719	95.719			
Subtotal Test & Evaluation			171.935	9.361		6.000		4.712		2.000		Continuing	Continuing	TBD			
Remarks:																	
Program Management Support	FFP	Various	60.364	.568	Oct-03	.565	Oct-04	.550	Oct-05	.350	Oct-06	Continuing	Continuing	TBD			
Subtotal Management			60.364	.568		.565		.550		.350		Continuing	Continuing	TBD			
Remarks:																	
Total Cost			1,792.246	86.996		102.150		88.135		59.881		Continuing	Continuing	Continuing			
Remarks:																	

R-1 SHOPPING LIST - Item No. 60

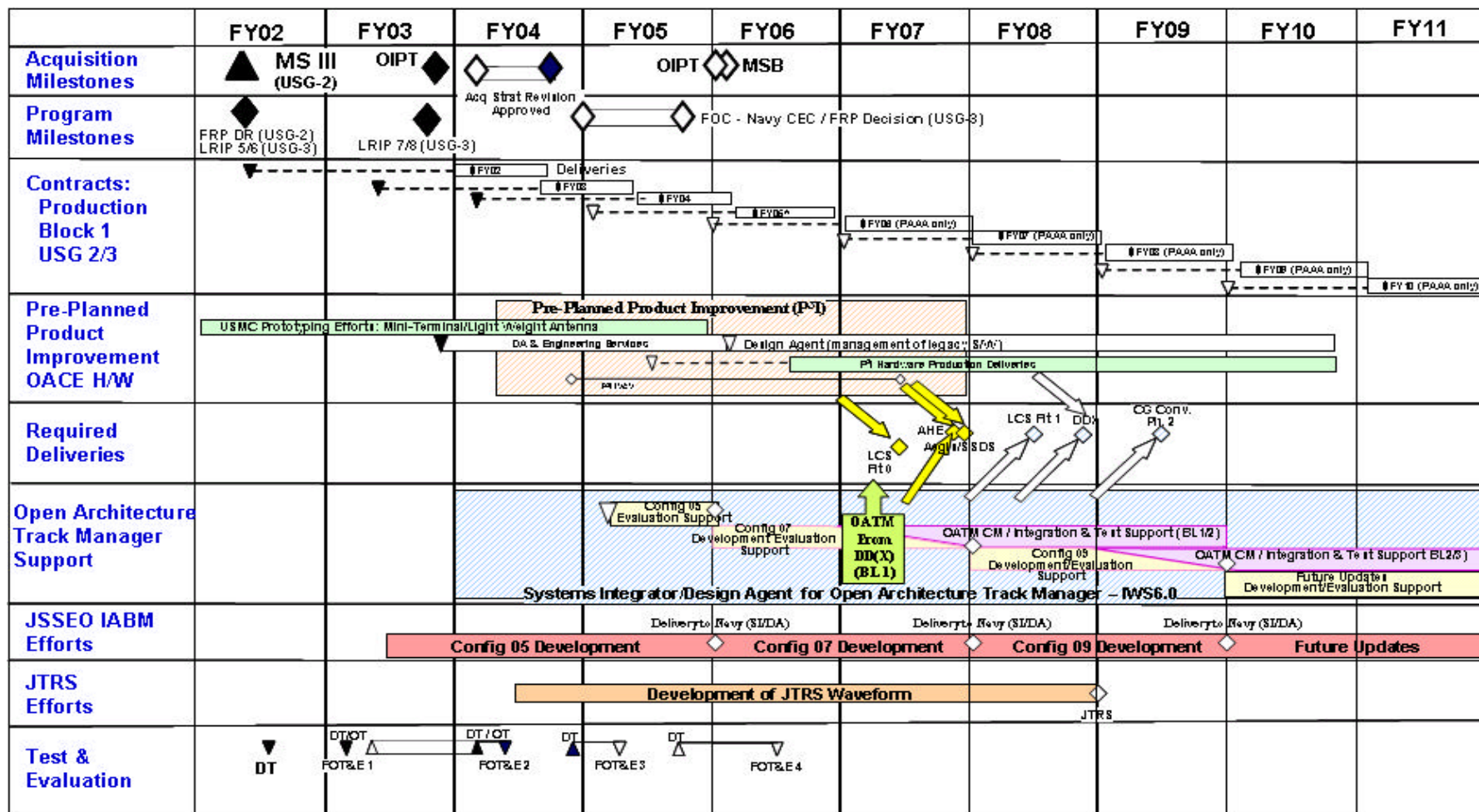
UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 9 of 11)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile						DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME				
RDT&E, N / BA-4			0603658N Cooperative Engagement Capability			2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues				



* NOTE: If P3 H/W is available for production, it will be cut into the FY05 production contract

** NOTE: Initial drop for integration into DD(X) software baseline

R-1 SHOPPING LIST - Item No. 60

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 10 of 11)

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CLASSIFICATION:

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R-1 SHOPPING LIST - Item No. 60

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 11 of 11)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603713N/Ocean Engineering Technology Development			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	17.545	25.978	24.620	15.029	4.900	5.028	5.077	5.209
0099/Deep Submergence Biomedical Development	2.985	3.248	2.989	2.993	3.709	3.746	3.823	3.896
0394/Shallow Depth Diving Equipment	14.560	22.730	21.631	12.036	1.191	1.282	1.254	1.313

Defense Emergency Response Funds (DERF) Funds: N/A.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Developments in this program will enable the U.S. Navy to overcome deficiencies that constrain underwater operations in the areas of search, location, rescue, recovery, salvage, construction, and protection of offshore assets. This program develops medical technology, diver life support equipment, and the vehicles, systems, tools and procedures to permit manned underwater operations.

R-1 SHOPPING LIST - Item No.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development				PROJECT NUMBER AND NAME 0099/Deep Submergence Biomedical Development			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.985	3.248	2.989	2.993	3.709	3.746	3.823	3.896
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Develops advanced biomedical and bioengineering technology for enhancing medical and life support for submarine escape and rescue; and for diver safety and effectiveness; supports deeper, longer, and more flexible dives. Deliverables for DISSUB (disabled submarine) include: medical procedures for submarine escape and rescue (including new Submarine Rescue Diving and Recompression System (SRDRS)), life support parameters, medical procedures for life support, exposure guidance for atmospheric contaminants, non-chemical CO2 scrubbing, prevention and treatment of decompression illness, and senior survivor expert decision system. Deliverables for diver enhancement include: exposure guidance for diver underwater continuous noise, impulse noise, and underwater blast, exposure guidance for oxygen breathing, collection of operational diving depth/time profiles to predict decompression risk, and enhanced underwater swimming efficiency. Requirements: NAPDD #587-873, Deep Submergence Biomedical Development, 23 November 1999.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development	PROJECT NUMBER AND NAME 0099/Deep Submergence Biomedical Development																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.618	1.825	1.684	1.689															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> Diver Health and Safety Research: Pulmonary oxygen toxicity exposure limits. Procedures for assessing and mitigating risk for diving in contaminated water. Procedure to determine remaining CO2 scrubber duration. Development of advanced insulation garments for diver thermal protection. Develop final guidance for warm water diving. Continue collection of operational dive profiles for advanced modeling. Submarine ballast tank air quality survey. Novel methods for diver thermal protection. Improve resistance to O2 toxicity. Diver anthropometry. Chemical hardening of diving equipment. Predictive index of visual and auditory O2 toxicity. Guidelines for flying after diving. Guidelines for infra- and ultra-sound diver exposure. Develop an advanced diver thermal model. Guidelines for ballast tank diving. Protective gear for diver noise exposure. Electronic collection of operational dive data. </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">1.367</td> <td style="text-align: center;">1.423</td> <td style="text-align: center;">1.305</td> <td style="text-align: center;">1.304</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.367	1.423	1.305	1.304	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.367	1.423	1.305	1.304															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> Submarine Rescue: Decompression procedures for pressurized SRDRS operators. Use of perfluorocarbons to accelerate decompression in submarine rescue. Adjunctive therapies for treating DISSUB survivors. Guidance for food, water, clothing, medical supplies to enhance survival of submarine crews awaiting rescue. Flexible computer generated decompression schedules for wide range of conditions in a DISSUB. Develop DISSUB triage procedures. DISSUB survival trial. Develop oxygen metabolizer for closed vehicles. Accelerate decompression by negative pressure breathing. Treatment guidance for decompression sickness and arterial gas embolism in submarine escape and rescue. Interventions for toxicological problems with rescued submariners. Minimizing decompression sickness and arterial gas embolism with Submarine Escape and Immersion Suit (SEIS) training. Use of pharmacologic agents to reduce decompression risk in submarine rescuees. </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development	PROJECT NUMBER AND NAME 0099/Deep Submergence Biomedical Development		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
FY05 President's Budget	2.996	3.280	3.375	4.077
FY06 President's Budget	2.985	3.248	2.989	2.993
Total Adjustments	-0.011	-0.032	-0.386	-1.084
Summary of Adjustments				
FY04 SBIR	-0.003			
Programmatic adjustments	-0.002	-0.001	-0.415	-1.122
Section 8105: Reduce IT Development Cost Growth		-0.002		
Section 8122: Asumed Management Improvements		-0.010		
Section 8131: Non-Statutory Funding Set Asides		-0.019		
Inflation adjustment			0.029	0.038
Cancelled Accounts	-0.006			
Subtotal	-0.011	-0.032	-0.386	-1.084

Schedule:

Not Applicable

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 61

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development			PROJECT NUMBER AND NAME 0099/Deep Submergence Biomedical Development					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
Not Applicable										
E. ACQUISITION STRATEGY: *										
Integrated thrust area teams (e.g. decompression research) are established with university, commercial and in-house Navy lab to jointly execute biomedical R&D; peer review of research proposals accomplished by independent Technical Advisory Board; annual review of progress by Executive Review Board (CNO/NAVSEA/ONR/BUMED); contracting by competitive process using BAA and leveraging ONR capabilities.										
F. MAJOR PERFORMERS: **										
Navy Experimental Diving Unit (NEDU) (Oct/each FY) is the center for manned diving biomedical research and development for the Navy. All Navy manned diving research facilities were consolidated at NEDU during the last BRAC.										

R-1 SHOPPING LIST - Item No. 61

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Exhibit R-2, RDTEB Budget Item Justification
(Exhibit R-2, page 6 of 17)

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603713N/Ocean Engineering Technology Development			0099/Deep Submergence Biomedical Development									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Development													0.000		
Ancillary Hardware Development													0.000		
Component Development													0.000		
Ship Integration													0.000		
Ship Suitability													0.000		
Systems Engineering													0.000		
Training Development													0.000		
Licenses													0.000		
Tooling													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															
Development Support													0.000		
Software Development													0.000		
Training Development													0.000		
Integrated Logistics Support													0.000		
Configuration Management													0.000		
Technical Data													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks:															

R-1 SHOPPING LIST - Item No. 61

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603713N/Ocean Engineering Technology Development			0099/Deep Submergence Biomedical Development								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NEDU	20.845	2.811	10/03	3.024	10/04	2.782	10/05	2.784	10/06	Continuous	32.246	
	CPIF	OceanWorks	1.171										1.171	1.171
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			22.016	2.811		3.024		2.782		2.784			33.417	
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support	Various		0.102	0.115	11/03								0.217	
Travel			0.033	0.023	various	0.027	various	0.029	various	0.031	various	Continuous	0.143	
Labor (Research Personnel)													0.000	
*SBIR Assessment			0.110	0.036	various	0.197	various	0.178	various	0.178	various		0.699	
Subtotal Management			0.245	0.174		0.224		0.207		0.209			1.059	
Remarks:*SBIR Assessment includes other extramural program assessments.														
Total Cost			22.261	2.985		3.248		2.989		2.993			34.476	
Remarks:														

R-1 SHOPPING LIST - Item No. 61

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 7 of 17)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development				PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	14.560	22.730	21.631	12.036	1.191	1.282	1.254	1.313
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project is to develop systems to support submarine escape and rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/recovery, and submarine rescue operations to support national, as well as, Navy needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. Efforts are currently (through FY 07) focused on the Submarine Rescue Diving and Recompression System (SRDRS) to provide a new rapidly deployed emergency submarine rescue capability. SRDRS will fill the gap created by the decommissioning of USS PIGEON (ASR 21) and USS ORTOLAN (ASR 22) and provide a new capability of pressurized transportation of rescuees from a stricken submarine directly to the decompression system eliminating the requirement for Deep Submergence Rescue Vehicles, Mother Submarines and Submarine Rescue Chambers. SRDRS is to include an air transportable rapid assessment/underwater work system, a decompression chamber system and a pressurized rescue module. The SRDRS will provide a global rapid response capability to support submarine rescue missions with an increase in capability at a fraction of the cost of the currently available systems. Requirements and funding beyond FY07 for SRDRS are currently zero (\$0.00) but the project costs are for other Shallow Depth Diving Equipment managed under SEA00C. FY04-07 budget as indicated above is solely for the SRDRS program acquisition.

Shallow Depth Diving Equipment managed under SEA 00C (FY08 - FY11) - This project develops systems to support submarine escape and rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/recovery, and submarine rescue operations to support national, as well as, Navy needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. Current plans are to perform R&D in the areas of contaminated water diving in FY08 – FY11.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development	PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment																	
B. Accomplishments/Planned Program																			
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Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			
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R-1 SHOPPING LIST - Item No.

61

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																																												
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development	PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment																																																																													
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> <th style="text-align: right; width: 15%;">FY 2006</th> <th style="text-align: right; width: 15%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY05 President's Budget</td> <td style="text-align: right;">14.981</td> <td style="text-align: right;">22.952</td> <td style="text-align: right;">15.337</td> <td style="text-align: right;">5.892</td> </tr> <tr> <td>FY06 President's Budget</td> <td style="text-align: right;">14.560</td> <td style="text-align: right;">22.730</td> <td style="text-align: right;">21.631</td> <td style="text-align: right;">12.036</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.421</td> <td style="text-align: right; border-top: 1px solid black;">-0.222</td> <td style="text-align: right; border-top: 1px solid black;">6.294</td> <td style="text-align: right; border-top: 1px solid black;">6.144</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td>Programmatic adjustments</td> <td></td> <td style="text-align: right;">-0.005</td> <td style="text-align: right;">6.085</td> <td style="text-align: right;">5.995</td> </tr> <tr> <td>FY04 SBIR (9-Apr-04)</td> <td style="text-align: right;">-0.383</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Section 8105 Reduce IT Development Cost Growth</td> <td></td> <td style="text-align: right;">-0.015</td> <td></td> <td></td> </tr> <tr> <td>Section 8122: Assumed Management Improvements</td> <td></td> <td style="text-align: right;">-0.069</td> <td></td> <td></td> </tr> <tr> <td>Section 8131 Non-Statutory Funding Set Asides</td> <td></td> <td style="text-align: right;">-0.133</td> <td></td> <td></td> </tr> <tr> <td>Inflation adjustment</td> <td></td> <td></td> <td style="text-align: right;">0.209</td> <td style="text-align: right;">0.149</td> </tr> <tr> <td>Execution Realignment</td> <td style="text-align: right;">0.002</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cancelled Accounts Liability</td> <td style="text-align: right;">-0.040</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">-0.421</td> <td style="text-align: right; border-top: 1px solid black;">-0.222</td> <td style="text-align: right; border-top: 1px solid black;">6.294</td> <td style="text-align: right; border-top: 1px solid black;">6.144</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 40px;">Not Applicable</p> <p style="margin-top: 20px;">Technical:</p> <p style="margin-left: 40px;">Not Applicable</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					FY05 President's Budget	14.981	22.952	15.337	5.892	FY06 President's Budget	14.560	22.730	21.631	12.036	Total Adjustments	-0.421	-0.222	6.294	6.144	Summary of Adjustments					Programmatic adjustments		-0.005	6.085	5.995	FY04 SBIR (9-Apr-04)	-0.383				Section 8105 Reduce IT Development Cost Growth		-0.015			Section 8122: Assumed Management Improvements		-0.069			Section 8131 Non-Statutory Funding Set Asides		-0.133			Inflation adjustment			0.209	0.149	Execution Realignment	0.002				Cancelled Accounts Liability	-0.040					-0.421	-0.222	6.294	6.144
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R-1 SHOPPING LIST - Item No. 61

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603713N/Ocean Engineering Technology Development			PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
Not Applicable										

E. ACQUISITION STRATEGY: *

The Submarine Rescue System (SRS) segment of the SRDRS is largely based on the use of Commercial-Off-the-Shelf (COTS) technology and maximum use of Non-Developmental Items (NDI). The SRS segment is being procured using performance based specifications. Many of the SRS contracts were awarded competitively and were based on technical capability and cost considerations (best value). The Prototype system will provide full operational capability and no additional procurement is planned. The system is designed to be Government Owned/Commercially Operated (GO/CO).

F. MAJOR PERFORMERS: **

Oceaneering International is providing systems engineering and integration support for the SRS through a Veterans Administration contract. Oceanworks, Inc. is the detailed designer and fabrication of the Pressurized Rescue Module. Global Phillips Cartner is providing fabrication and integration of the SRDRS mission support equipment.

R-1 SHOPPING LIST - Item No. 61

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603713N/Ocean Engineering Technology			0394/Shallow Depth Diving Equipment								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development														
Ancillary Hardware Development														
Design, System integration	CPAF	Oceaneering (remark 2)	6.638		N/A		N/A		N/A		N/A		6.638	
Decompression Chambers (SDC 1 and 2)	FFP	NFESC	3.317	0.000	N/A		N/A		N/A		N/A		3.317	
Various Mission Support Equip. (MSE)	Various	GPC(Past)/Various (Fut	7.768	0.491	Various	1.243	Various	4.651	Various	1.971	Various		16.124	
Pressurized Rescue Module Sys. (PRMS	CPIF	Oceanworks	22.785	10.000	Various	6.390	Various	3.009	Various	0.483	Various		42.667	
Various PRMS MSE	Various	Miscellaneous	5.581	0.513	Various	5.269	Various	2.799	Various	0.000	Various		14.162	
Systems Engineering - Design, Integratio	Various	Oceaneering	11.991	0.854	Various	1.692	Various	0.829	Various	0.510	Various		15.876	
Systems Engineering - Technical	Various	Various	3.843	0.297	Various	0.403	Various	0.537	Various	0.314	Various		5.394	
Licenses													0.000	
GFE													0.000	
Award Fees	CPAF	Oceaneering	1.234		N/A		N/A		N/A		N/A		1.234	
	CPAF	GPC	0.254		Nov-02	0.172	Various	0.050	Various	0.103	Various		0.579	
													0.000	
Subtotal Product Development			63.411	12.155		15.169		11.875		3.381		0.000	105.991	
Remarks: SDC-1 and SDC-2 chambers under a FFP contract through NFESC. Contract completion date (CCD) remains 31 August 2003 and was missed. Liquidated damages are being assessed per the FAR. A significant Request for Equitable Adjustment (REA) has been submitted and contracting officer progress within NAVFESC. Adjudication or financial liability to program is not included in controls.														
Development Support	Various	Miscellaneous	0.279		N/A		N/A		N/A		N/A		0.279	
Software Development	WR	NSWC CD	0.221		N/A		N/A		N/A		N/A		0.221	
Integrated Logistics Support	MIPR	DOI, Titan	2.114	0.180	Oct-04		N/A		N/A		N/A		2.294	
Integrated Logistics Support	Various	Miscellaneous	0.000	0.293	Various	0.841	Various	0.837	Various	0.746	Various		2.717	
Configuration Management	CPAF	Oceaneering	0.000	0.170	Various	0.489	Various	0.505	Various	0.340	Various		1.504	
Technical Data													0.000	
GFE													0.000	
Award Fees	CPAF	Phoenix International	0.023		N/A		N/A		N/A		N/A		0.023	
Subtotal Support			2.637	0.643		1.330		1.342		1.086		0.000	7.038	
Remarks:														

R-1 SHOPPING LIST - Item No. 61

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 12 of 17)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0603713N/Ocean Engineering Technology			PROJECT NUMBER AND NAME 0394/Shallow Depth Diving Equipment								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Miscellaneous	1.093	0.000	N/A	1.830	Various	2.762	Various	1.903	Various		7.588	
Operational Test & Evaluation	WX	COMOPTEVFOR	0.020	0.015	Various	1.678	Various	2.358	Various	3.277	Various		7.348	
													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			1.113	0.015		3.508		5.120		5.180		0.000	14.936	
Remarks:														
Contractor Engineering Support	Various	QBS/Various	1.225	0.093	Nov-04	0.096	Various	0.074	Various	0.051	Various		1.539	
Government Engineering Support	WX	NFESC	0.416	0.060	Various	0.050	Various		N/A		N/A		0.526	
Government Engineering Support	MIPR	DOI	1.161		N/A		N/A		N/A		N/A		1.161	
Government Engineering Support	WX	PSNSY, Various	0.011	0.212	Various	0.330	Various	0.339	Various	0.350	Various		1.242	
Government Engineering Support	Various	Miscellaneous	1.277	0.340	Various	1.017	Various	1.466	Various	0.950	Various		5.050	
Program Management Support	Various	Miscellaneous	0.374	0.375	Nov-04	0.386	Various	0.398	Various	0.410	Various		1.943	
Travel	Various	Various	0.451	0.366	Various	0.371	Various	0.574	Various	0.382	Various		2.144	
SBIR Assessment (remark 1)			0.596	0.301	Various	0.473	Various	0.443	Various	0.246	Various		2.059	
Subtotal Management			5.511	1.747		2.723		3.294		2.389		0.000	15.664	
Remarks:														
Total Cost			72.672	14.560		22.730		21.631		12.036		0.000	143.629	
Remarks:														

R-1 SHOPPING LIST - Item No. 61

UNCLASSIFIED

Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 13 of 17)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: January 200				38384				
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA-4										0603713N/Ocean Engineering Technology Development										0394/Shallow Depth Diving Equipment												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones																				MS C / OC												
Design/Development																																
Submarine Decompression System (SDS)																																
Pressurized Rescue Module System (PRMS)																																
Delivery:																																
(1) Recompression																																
(2) Rescue																																
(3) Transfer Under Pressure (TUP)																																
Configuration Audits																																
Physical Configuration Audits																																
Functional Configuration Audits																																
Test & Evaluation Milestones																																
Development Test:																																
(1) SDS																																
(2) TUP																																
(3) PRMS																																
Operational Test:																																
(1) SDS																																
(2) TUP																																
(3) PRMS																																
Production Milestones																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 61

* Not required for Budget Activities 1, 2, 3, and 6

UNCLASSIFIED

Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 14 of 17)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																		Date:														
																		January 2005				38384										
APPROPRIATION/BUDGET ACTIVITY									PROGRAM ELEMENT NUMBER AND NAME									PROJECT NUMBER AND NAME														
RDT&E, N / BA-4									0603713N/Ocean Engineering Technology Development									0394/Shallow Depth Diving Equipment														
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Design/Development																																
Contaminated Water Diver Protection																																
Contaminated Water Diver Decontamination																																
Contaminated Water Tender Protection																																
Test & Evaluation Milestones																																
Development Test & Operational Test:																																
Contaminated Water Diver Protection																																
Contaminated Water Diver Decontamination																																
Contaminated Water Tender Protection																																
Final Design/Certification																																
Contaminated Water Diver Protection																																
Contaminated Water Diver Decontamination																																
Contaminated Water Tender Protection																																

R-1 SHOPPING LIST - Item No. 61

* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 15 of 17)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						38384			
						January 2005			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&BA-4		0603713N/Ocean Engineering Technology Development				0394/Shallow Depth Diving Equipment			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Milestone II (MSII)									
Detail Design/Development and Fab (SDS - SDC, PFMS,	1Q-4Q	1Q-4Q	1Q-3Q						
Detail Design/Devel. and Fab (PRMS - PRMS-1 and PRM	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q				
Critical Design Review (CDR) - PRMS	3Q								
Physical Configuration Audit - SDC	4Q	1Q							
Hardware Delivery - SDC-1 and SDC 2	4Q	1Q							
Functional Configuration Audit (FCA) - PRM		2Q							
Developmental Testing (DT-SDS)		2Q							
Operational Testing (OOC-SDS)			1Q						
Acquisition Capability Delivery - Recompression			1Q						
Physical Configuration Audit - PRM		4Q							
Hardware Delivery - PRM-1 and PRMS			2Q						
Developmental Testing (DT-PRMS)			2Q-3Q						
Operational Testing (OOC-PRMS)			3Q-4Q						
Acquisition Capability Delivery - Rescue Ready			4Q						
Hardware Delivery - DTL			3Q						
Developmental Testing (DT-TUP)				2Q-3Q					
Operational Testing (OOC-TUP)				2Q-3Q					
Acquisition Capability Delivery - TUP				3Q					
Physical Configuration Audit - PRM-2					2Q				
Hardware Delivery - PRM-2					2Q				
Operational Evaluation Full SRDRS					3Q-4Q				
Milestone C					4Q				
Acquisition Capability Delivery - Full Up SRDRS					4Q				
First Deployment (Rescue Ready (DSRV Equiv.)			4Q						
First Deployment (Fly Away Recompression w/ TUP)				3Q					
First Deployment Full -Up SRDRS					4Q				
Initial Operational Capability (IOC) of Full Up SRDRS					4Q				

Note: PRM-2 is an unfunded requirement.

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 16 of 17)

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 17 of 17)

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE PE0603721N / Environmental Protection			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	31.456	28.113	21.977	22.373	23.426	24.022	24.587	25.144
Shipboard Waste Management / 0401	24.653	16.818	9.008	7.510	8.078	8.612	8.849	9.071
Environmental Compliance / 2210	0.751	0.770	0.841	1.026	1.068	0.832	0.847	0.863
Pollution Abatement / 0817	4.027	6.809	7.592	9.261	9.651	9.910	10.176	10.446
Marine Mammal Detection & Mitigation / 9204*	2.025	2.080	4.536	4.576	4.629	4.668	4.715	4.764
Anoxia Research In Puget Sound / 9536**	0.000	1.388	0.000	0.000	0.000	0.000	0.000	0.000
COMNAVMAR Invasive Species Demonstration Program / 9537**	0.000	0.248	0.000	0.000	0.000	0.000	0.000	0.000
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: (U) Many environmental laws, regulations, and policies impose restrictions on Navy vessels, aircraft, and facilities that interfere with operations and/or increase the cost of operations. The Navy must be able to conduct its national security mission in compliance with applicable environmental requirements in the U.S. and abroad without compromising performance, safety, or health, while simultaneously minimizing the cost of compliance. This program develops and evaluates processes, hardware, systems, and operational procedures that will allow the Navy to operate in U.S., foreign, and international waters, air, space, and land areas while complying with environmental U.S. statutes and international agreements. Projects support the Navy's compliance with: OPNAVINST 5090.1B CH-4 and other Navy environmental-related policies; the Clean Water Act, Clean Air Act, Act to Prevent Pollution from Ships, National Environmental Policy Act, Marine Plastic Pollution Research and Control Act, Endangered Species Act, Marine Mammal Protection Act, Resource Conservation and Recovery Act, Toxic Substances Control Act, U.S. Public Vessel Medical Waste Anti-Dumping Act, and Federal Facility Compliance Act; and Executive Orders 12088, 12114, 12843, 13089, 13101, 13112, 13148, and 13158. Project 0401 supports RDT&E efforts that allow Navy ships and submarines to comply with existing laws, regulations, and policies in four major areas: ozone depleting substances, liquid wastes, solid wastes, and hazardous and other wastes. Project 2210 funds RDT&E requirements that allow Navy compliance with laws, regulations and policies impacting the basing, re-alignment, operation, repair, and replacement of Naval aircraft in four major areas: engine emissions, air vehicle hazardous materials and wastes, ozone depleting substances, and aviation shipboard emissions. Project 0817 funds RDT&E requirements that allow the Navy to develop and validate technologies to enable Navy facilities to comply with environmental laws, regulations, and policies in a cost-effective manner. * Project 9204 is a Congressional add. Becomes a budgeted project in FY06. ** Projects 9536 and 9537 are Congressional adds.								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	24.653	16.818	9.008	7.510	8.078	8.612	8.849	9.071
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Navy ships and submarines must routinely operate in U.S., international, and foreign waters, and visit numerous U.S. and foreign ports. No body of water is without environmental restrictions that impact the movements and operations of Navy vessels. Environmental requirements tend to be most restrictive in port and in coastal waters, where the Navy's increasing littoral presence places ships and submarines in discharge-restricted waters for longer periods of time. Growing international cooperation in addressing global environmental concerns is resulting in expanding areas of ocean designated as environmentally sensitive, where special prohibitions on ship discharges are imposed. Navy vessels must comply with applicable environmental legal requirements while ensuring continued access to all waters for operations, exercises, training, and port access. The large crews and limited onboard space of Navy ships and submarines severely constrain their ability to hold wastes for return to port for shoreside disposal. This project develops and evaluates shipboard waste processing equipment and systems to enable ships and submarines to manage their wastes in an environmentally-compliant, safe, and operationally-compatible manner. It also addresses afloat environmental issues other than shipboard wastes, e.g., protected marine animals and hull antifouling, that pose significant operational and port entry threats to the Navy Fleet.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Ozone Depleting Substances</td><td style="text-align: center;">1.000</td><td style="text-align: center;">1.000</td><td style="text-align: center;">0.100</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Ozone Depleting Substances	1.000	1.000	0.100	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Ozone Depleting Substances	1.000	1.000	0.100	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 150px; margin-bottom: 10px;"></div>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Integrated Liquid Wastes	5.646	5.600	5.300	5.100
RDT&E Articles Quantity				
<p>FY 04: (U) Continued support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continued discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continued development of integrated liquid waste treatment system: completed development of Engineering Development Model (EDM) non-oily wastewater treatment system; initiated development of MPCD treatment systems; initiated development of shipboard Oil Pollution Abatement System improvements; initiated evaluation of commercial non-oily wastewater treatment systems.</p> <p>FY 05: (U) Continue support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continue discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continue development of Integrated liquid waste treatment system: continue development of MPCD treatment systems; continue development of shipboard Oil Pollution Abatement System improvements; continue evaluation of commercial non-oily wastewater treatment systems.</p> <p>FY 06: (U) Continue support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continue discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continue development of Integrated liquid waste treatment system: continue development of MPCD treatment systems; complete development of shipboard Oil Pollution Abatement System improvements; continue evaluation of commercial non-oily wastewater treatment systems.</p> <p>FY 07: (U) Continue support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continue discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continue development of Integrated liquid waste treatment system: continue development of MPCD treatment systems; continue evaluation of commercial non-oily wastewater treatment systems.</p>				

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management																	
B. Accomplishments/Planned Program (Cont.)																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Solid Wastes</td><td style="text-align: center;">3.000</td><td style="text-align: center;">0.500</td><td style="text-align: center;">0.050</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><p>FY 04: (U) Completed development of advanced thermal destruction system for processing shipboard solid wastes. Initiated evaluation of commercial thermal destruction systems for shipboard solid wastes.</p><p>FY 05: (U) Continue evaluation of commercial thermal destruction systems for shipboard solid wastes.</p><p>FY 06: (U) Complete evaluation of commercial thermal destruction systems for shipboard solid wastes.</p></div>						FY 04	FY 05	FY 06	FY 07	Solid Wastes	3.000	0.500	0.050	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Solid Wastes	3.000	0.500	0.050	0.000															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Hazardous and Other Major Ship Wastes</td><td style="text-align: center;">15.007</td><td style="text-align: center;">9.718</td><td style="text-align: center;">3.558</td><td style="text-align: center;">2.410</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><p>FY 04: (U) Continued shipboard hazardous materials substitution and elimination process and continued test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continued development of marine mammals ship database tracking system: continued demonstration of acoustic modelling. Continued development and testing of new low/no-copper underwater hull antifouling coatings. Continued development of underwater hull cleaning system. Continued development of Environmental Information Management System (EIMS).</p><p>FY 05: (U) Continue shipboard hazardous materials substitution and elimination process and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development of marine mammals ship database tracking system: continue demonstration of acoustic modelling; transition to Project 9204 in FY06. Continue development and testing of new low/no-copper underwater hull antifouling coatings. Continue development of underwater hull cleaning system. Continue development of Environmental Information Management System (EIMS).</p><p>FY 06: (U) Continue shipboard hazardous materials substitution and elimination process and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development and testing of new low/no-copper underwater hull antifouling coatings. Continue development of underwater hull cleaning system. Continue development of Environmental Information Management System (EIMS).</p><p>FY 07: (U) Continue shipboard hazardous materials substitution and elimination process and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development and testing of new low/no-copper underwater hull antifouling coatings. Complete development of underwater hull cleaning system. Complete development of Environmental Information Management System (EIMS).</p></div>						FY 04	FY 05	FY 06	FY 07	Hazardous and Other Major Ship Wastes	15.007	9.718	3.558	2.410	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Hazardous and Other Major Ship Wastes	15.007	9.718	3.558	2.410															
RDT&E Articles Quantity																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
Previous President's Budget: (FY 05 Pres Controls)	25.283	16.980	12.172	10.670
Current BES/President's Budget:	24.653	16.818	9.008	7.510
Total Adjustments	-0.630	-0.162	-3.164	-3.160
Summary of Adjustments				
Program Adjustments		-0.003	-3.164	-3.160
SPAWAR Service Cost Center Adjustment	-0.007			
Section 8094: Management Improvements	-0.067			
Efficiencies/Revised Econ. Assumptions	-0.215			
FY04 SBIR (19-Apr-04)	-0.255			
Cancelled Account	-0.063			
FY04 Non-Pay Inflation Savings	-0.023			
Section 8105, 8122, 8131		-0.159		
Subtotal	-0.630	-0.162	-3.164	-3.160

Schedule:
Not applicable.

Technical:
Not applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection		PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management			

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
(U) Demonstrated and validated technologies are transitioned to various SCN, OPN, and O&MN budget accounts for implementation as part of a Fleet modernization program or new ship construction.										
(U) Related RDT&E: (U) Defense Research Sciences/Shipboard Processes (PE 61153N / 3162)										
(U) Readiness, Training, and Environmental Quality/Logistics and Environmental Quality (PE 62233N)										

E. ACQUISITION STRATEGY:

(U) RDT&E Contracts are Competitive Procurements.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			PE0603721N / Environmental Protection			0401 / Shipboard Waste Management								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	WMTD, Pitts, PA	14.580										14.580	14.580
Primary Hardware Development	C/CPFF	Geo-Centers, Inc,Bos.,MA	23.250	1.500	01/04	0.500		0.000		0.000		Cont	Cont	N/A
Primary Hardware Development	SS/CPFF	York Internat'l Corp,York,PA	2.700									N/A	2.700	2.700
Primary Hardware Development	SS/CPFF	York Internat'l Corp,York,PA	11.850									10.150	25.000	25.000
Primary Hardware Development	SS/CPFF	N. Res & Eng Corp,Wab.,MA	1.200									N/A	1.200	1.200
Primary Hardware Development	C/CPFF	M. Rosenblatt & Son, NY,NY	10.363									Cont	Cont	N/A
Ancillary Hardware Development	Various	Misc. Contracts	16.884	1.500	Various	0.500	Various	0.500		0.500		N/A	N/A	N/A
Component Development													0.000	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	C/CPFF	John J. McMullen & Son	4.487	0.000		0.000						Cont	Cont	N/A
Training Development													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			85.314	3.000		1.000		0.500		0.500		Cont	Cont	N/A
Remarks: (1) Hardware Development and Systems Engineering Tasks use CPFF Delivery Contracts for Continuing Development of Pollution Abatement Hardware and Ship Systems Engineering Analysis.														
Development Support													0.000	
Software Development	WR	SPAWARS, Charleston, SC	5.938	2.100	10/03	2.838	10/04	1.000		0.000		0.000	11.876	0.000
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			5.938	2.100		2.838		1.000		0.000		0.000	11.876	
Remarks:														

R-1 SHOPPING LIST - Line No. 62

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Exhibit R-3, Project Cost Analysis

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWCCD, Bethesda, MD	130.524	11.000	10/03	6.500		4.000		4.000		Cont	Cont	N/A
Developmental Test & Evaluation	WR	NRL, Wash, DC	25.982	2.000	11/03	1.000		0.500		0.400		Cont	Cont	N/A
Developmental Test & Evaluation	WR	SPAWARSYSCEN, SD, CA	8.570	1.500	10/03	0.500		0.500		0.200		Cont	Cont	N/A
Process Control Engineering	C/CPFF	GSA/BAH, Arlington, VA	9.322	3.000	5/04	3.000		1.500		1.500		Cont	Cont	N/A
Developmental Test & Evaluation	WR	Misc. Govt Labs	22.232	0.500	Various	0.500		0.000		0.000		Cont	Cont	N/A
Developmental Test & Evaluation	C/CPFF	Geo-Centers, Inc, Bos., MA	13.251	1.000	01/04	1.000	01/05	0.600		0.500		Cont	Cont	N/A
Developmental Test & Evaluation	C/CPFF	York Internat'l Corp, York, PA	12.000									0.000	12.000	12.000
Developmental Test & Evaluation	C/CPFF	Misc. Contracts	11.519	0.533	Various	0.460	Various	0.388		0.390		Cont	Cont	N/A
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	N/A
Subtotal T&E			233.400	19.533		12.960		7.488		6.990		0.000	Cont	N/A
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support													0.000	
Travel			0.190	0.020		0.020		0.020		0.020			Cont	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.190	0.020		0.020		0.020		0.020		0.000	Cont	
Remarks:														
Total Cost			324.842	24.653		16.818		9.008		7.510		Cont	Cont	Cont
Remarks:														

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CLASSIFICATION:

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EXHIBIT R4, Schedule Profile																	DATE:				February 2005							
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-4					PE0603721N / Environmental Protection												0401 / Shipboard Waste Management											
Fiscal Year	2004				2005				2006				2007				2008				2009							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Ozone Depleting Substances																												
Alternative (Non-Vapor-Compression) Cooling Concepts																												
Lubrication and Engineering Problems for HFC-236fa																												
Air-Conditioning Plants																												
Integrated Liquid Wastes																												
Uniform National Discharge Standards (UNDS)																												
Rulemaking																												
Develop Marine Pollution Control Device (MPCD)																												
Treatment Systems																												
Oil Pollution Abatement (OPA) System																												
Improvements																												
Evaluate Commercial Non-Oily Wastewater																												
Treatment Systems																												
Solid Wastes																												
Advanced Thermal Destruction System																												
Evaluate Commercial Thermal Destruction Systems																												
Hazardous and Other Major Ship Wastes																												
Hazardous Materials Substitution/Elimination																												
Pollution Prevention Equipment																												
Protected Marine Animals																												
Low/No-Copper Hull Antifouling Coatings																												
Underwater Hull Cleaning System																												
Environmental Information Management System (EIMS)																												

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Exhibit R-4, Schedule Profile

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 2210 Environmental Compliance			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	0.751	0.770	0.841	1.026	1.068	0.832	0.847	0.863
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification: This project supports development and implementation of technologies which will lead to environmentally safe naval aviation operations and support; compliance with international, federal, state, and local regulations and policies; reduction of increasing compliance costs and personal liability; and enhancement of naval aviation mission readiness and effectiveness. This project will support aviation compliance and pollution prevention technologies as well as additional operational and shipboard aviation requirements previously unsupported. Specific regulatory requirements include Executive Orders 12873 (Recycling & Waste Prevention), and 13148, the National Environmental Policy Act (NEPA), Clean Air Act (CAA) Title I, National Ambient Air Quality Standards (NAAQS), relating to pollutants aircraft contribute to base air emission limits (volatile organic compounds (VOCs), particulate matter (PM), oxides of nitrogen (NOx), oxides of sulfur (SOx), and unburned hydrocarbons (UHCs)), the National Emission Standards for Hazardous Air Pollutants (NESHAPs), the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), as well as Occupational, Safety and Health Administration (OSHA) standards.

2210 legacy aircraft maintenance facility requirements were rebaselined to Project 0817, Pollution Abatement Ashore, beginning FY 04.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 2210 Environmental Compliance																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.524</td><td style="text-align: center;">0.532</td><td style="text-align: center;">0.565</td><td style="text-align: center;">0.726</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.524	0.532	0.565	0.726	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.524	0.532	0.565	0.726															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">Engine Emissions Technology: Research, develop and test low emissions technology for gas turbine engines. Objectives include test, demonstrate and validate jet fuel additives for pollution prevention and compliance, gas turbine engine particulate matter measurement and testing technology, low emissions combustor technology, aircraft source noise modeling and mitigation technologies.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.227</td><td style="text-align: center;">0.238</td><td style="text-align: center;">0.276</td><td style="text-align: center;">0.300</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.227	0.238	0.276	0.300	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.227	0.238	0.276	0.300															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">Aircraft Hazardous Materials and Shipboard Waste Reduction: Research, develop and test alternatives to aircraft and propulsion and power systems manufacture, finishing and repair processes that generate toxic heavy metals, hazardous air pollutants (HAPs) and volatile organic compounds (VOCs). Objectives include the test, demonstration and validation of aircraft structural stainless steels, long life lead and cadmium free aircraft batteries and shipboard validation of corrosion and composite repair kits, environmentally compliant cleaners, coatings and coatings maintenance technologies repair kits.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

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Exhibit R-2a, RDTEN Project Justification

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 2210 Environmental Compliance		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
Previous President's Budget:	0.758	0.776	0.811	1.027
Current BES/President's Budget	0.751	0.770	0.841	1.026
Total Adjustments	-0.007	-0.006	0.030	-0.001
Summary of Adjustments				
Congressional undistributed reductions		-0.006		
SBIR/STTR Transfer	-0.007			
Program Adjustments			-0.077	-0.068
Economic Assumptions			0.007	0.013
Congressional increases			0.100	0.054
Subtotal	-0.007	-0.006	0.030	-0.001
Schedule:				
Not applicable				
Technical:				
Not applicable				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 2210 Environmental Compliance			

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
Related RDT&E:										
PE0603851D (Environmental Security Technology Certification Program)	0.950	0.750								
PE0602121N (Ship, Submarine and Logistics Technology)										
PE060223N (Readiness/Training/Environmental Quality)										
PE0603716D (Strategic Environmental R&D Program)										

E. ACQUISITION STRATEGY:

Technologies developed under this project are demonstrated and validated primarily through competitive procurements. Validated technology is transitioned to users through new or revised performance specifications, technical manuals or competitive procurements of subsystems, materials or processes.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)									DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603721N Environmental Protection			2210 Environmental Compliance						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WR	NAWCAD, Pax River	2.990	0.532	10/04	0.565	10/05	0.726	10/06	Continuing	Continuing	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			2.990	0.532		0.565		0.726		Continuing	Continuing	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0603721N Environmental Protection			PROJECT NUMBER AND NAME 2210 Environmental Compliance						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	WR	NAWCAD, Pax River	0.502	0.238	10/04	0.276	10/05	0.300	10/06	Continuing	Continuing	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.502	0.238		0.276		0.300		Continuing	Continuing	
Remarks:												
Total Cost			3.492	0.770		0.841		1.026		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:									
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-4										0603721N Environmental Protection												2210 Environmental Compliance											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
Acquisition Milestones																																	
Engine Emission Technology																																	
Aircraft Hazardous Material																																	
Shipboard Waste Reduction																																	
Test & Evaluation Milestones																																	
Engine Emission Development Test																																	
Shipboard Waste Reduction Development Test																																	
Production Milestones																																	
Deliveries																																	

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Exhibit R-4, Schedule Profile

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CLASSIFICATION:

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Exhibit R-4a, Schedule Detail

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0817 / Pollution Abatement			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	4.027	6.809	7.592	9.261	9.651	9.910	10.176	10.446
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>(U) This project develops and validates new technologies needed to address pervasive Navy shoreside environmental requirements imposed on Naval shore activities by the need to comply with environmental laws, regulations, orders, and policies. The goal of the program is to minimize personnel liabilities, operational costs, and regulatory oversight while preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions. Each project task addresses one or more of the requirements from the Navy Environmental Quality RDT&E Requirements. Project investment supports 4 of 5 Environmental Enabling Capabilities (EECs) as detailed in the POM06 Integrated Navy Environmental Readiness Capability Assessment for S&T and DT&E.</p> <p>(U) EEC-2 MAXIMIZE TRAINING AND TESTING REQUIREMENTS WITHIN ENVIRONMENTAL CONSTRAINTS</p> <p>(U) This capability addresses environmental impacts and restrictions at Navy ranges to ensure that Naval training ranges and munitions testing/manufacturing ranges are fully available and efficiently utilized. Investments under 0817 for the FYDP address address two thrust areas: Environmental effects of underwater UXO and Navy range sustainability. Investment in ordnance testing, manufacture and disposal is concluding in FY04.</p> <p>(U) ENVIRONMENTAL EFFECTS OF UNDERWATER UXO</p> <p>(U) The thrust was added in FY04 based on results of the Initiation Decision Report (IDR) completed on Environmental Effects of Underwater UXO in FY02. The tasks in this thrust support the requirements for addressing the transport, fate, and effects of underwater UXO needed to support scientifically valid decisions.</p> <p>(U) RANGE SUSTAINABILITY</p> <p>(U) Technology gaps and opportunities to support Navy range sustainability were investigated in FY03-04. An IDR on Navy training lands sustainability was completed in FY04. The tasks in this thrust, added for FY05 will address the technology needs and gaps identified in the IDR and supported by the Navy range community.</p> <p>(U) ORDNANCE TESTING/MANUFACTURE/DISPOSAL</p> <p>(U) Tasks conducted in this thrust addressed specific compliance-driven environmental requirements of Navy ordnance activities. These efforts are concluding in FY04 with the completion of the pilot scale confined burn facility. Further investment in the CBF test and evaluation will be pursued through the DoD's ESTCP program.</p>								

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement
<p>(U) EEC-3 PLATFORM MAINTENANCE AND REPAIR WITH MINIMAL ENVIRONMENTAL FOOTPRINT</p> <p>(U) This capability focuses on identifying systems and processes that minimize or eliminate environmental hazards in critical repair and maintenance operations. Investment under 0817 for the FYDP address two thrust area: Ship maintenance and repair, and Aircraft maintenance and repair.</p> <p>(U) SHIP MAINTENANCE AND REPAIR</p> <p>(U) Tasks in this thrust area address environmental requirements originating at Naval shipyards (NSYs) and Ship Intermediate Maintenance Activities (SIMAs). As the Navy pursues a strategy to reduce ship maintenance costs by shifting work to SIMAs, new requirements are emerging as these processes and resulting hazardous waste streams become more decentralized. SIMAs require technologies that are cost-effective when operated less frequently and with lower throughput. The projects address technology needs for NSYs and SIMAs identified by the NAVSEA P2 Technology Needs Subcommittee.</p> <p>(U) AVIATION MAINTENANCE AND REPAIR</p> <p>(U) This thrust was added in FY04. The tasks in this thrust reduce the shoreside environmental impacts of aviation maintenance at air bases and depots. Projects in this thrust address environmental technology needs for aviation maintenance at air bases and depots identified by the NAVAIR P2 Working IPT.</p> <p>(U) EEC-4. SUPPORT SHORE READINESS WITHIN ENVIRONMENTAL CONSTRAINTS</p> <p>(U) This capability provides cost effective services at Naval bases and air facilities in compliance with environmental regulations. RDT&E is focused on elimination and reduction of environmental constraints related to base operations to ensure operational readiness through sustained airfield, waterfront, and facilities support operations, as well as cost savings and avoidance associated with relief from compliance burdens. Investment under 0817 for the FYDP addresses the Base operations and maintenance thrust area.</p> <p>(U) BASE OPERATIONS AND MAINTENANCE</p> <p>(U) Tasks in this thrust address compliance and pollution prevention environmental requirements originating from the industrial operations of Navy Public Works Centers and Naval Stations. As part of an overall Navy strategy, future tasks will shift more of the investment from compliance technologies to pollution prevention technologies that are cost-effective solutions to compliance requirements. It is also expected that there will be new requirements driven by the trend towards stricter federal, state, and local air emission and wastewater regulations. The tasks address environmental technology needs validated by NAVFAC Compliance Media Field Teams. Technology solutions are determined within the EPA hierarchy source reduction (process changes, material substitutions), recycle/reuse, waste treatment, and waste disposal.</p>		

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement
<p>(U) EEC-5. COST-EFFECTIVE MANAGEMENT OF ENVIRONMENTAL REGULATORY REQUIREMENTS</p> <p>(U) This capability provides cost-effective methods for identifying, analyzing, and managing environmental constraints related to current and projected regulatory impacts. Naval shore establishment needs scientific data, improved methods, and models to support Navy positions and policy in commenting on proposed regulations, assessing the environmental impacts of Navy operations on harbors, US waterways, and surrounding communities, and conducting ecological risk assessments. Significant technical improvements are needed in all areas of environmental management including source control, assessment, remediation, and monitoring. Investment under 0817 for the FYDP addresses two thrust area: Coastal Contamination and Contaminated Sediments and Environmental Monitoring and Reporting.</p> <p>(U) COASTAL CONTAMINATION AND CONTAMINATED SEDIMENTS</p> <p>(U) This thrust area was created in FY02. Tasks within this area address requirements for reducing the cost of environmental compliance and cleanup for coastal contamination and contaminated sediments. Navy compliance with all of the laws and regulations dealing with marine and coastal environments is complex and costly. Tasks will develop and evaluate technologies for sediment characterization and monitoring, sediment management and remediation, and contaminant impacts to receiving waters, and marine environmental risk assessment.</p> <p>(U) ENVIRONMENTAL MONITORING AND REPORTING</p> <p>(U) This thrust area was created in FY02. Tasks under this thrust will address legal and policy requirements for permitting, monitoring and detection, record keeping, and reporting of wastewater discharges, air emissions, and hazardous wastes, and other environmental issues. The detection and monitoring devices and procedures demonstrated under this thrust will improve process performance, provide mission-compatible compliance with provisions of the Clean Water Act (CWA), Clean Air Act (CAA), Resource Conservation & Recovery Act (RCRA), Toxic Substance Control Act (TSCA), State, and local regulations and reduce costs for environmental sampling, analysis, and reporting.</p>		

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Exhibit R-2a, RDTEN Project Justification

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement																																
B. Accomplishments/Planned Program - Maximize Training and Testing Requirements Within Environmental Constraints																																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> </thead> <tbody> <tr> <td>Environmental Effects of Underwater Ordnance</td> <td style="text-align: center;">0.845</td> <td style="text-align: center;">0.850</td> <td style="text-align: center;">0.588</td> <td style="text-align: center;">1.150</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>FY 04: The thrust was new for FY04 based on results of the Initiation Decision Report (IDR) completed on Environmental effects of Underwater UXO in FY02. The tasks in this thrust support the requirements for addressing the transport, fate, and effects of underwater UXO needed to support scientifically valid decisions. Continued toxicity and degradation studies of ordnance and explosives in marine environment. Continued UXO casing corrosion evaluation. Continued evaluation of UXO transport in marine sediments.</p> <p>FY 05: Complete Toxicity and Degradation Study of Ordnance in Marine Sediments. Complete UXO Casing Corrosion. Complete UXO Transport Evaluation. Continue Underwater UXO Risk Assessment Model.</p> <p>FY06: Complete Toxicity and Degradation Study of Ordnance in Marine Sediments. Complete Underwater UXO Risk Assessment Model. Initiate Ecorisk Assessment of Underwater UXO.</p> <p>FY07: Continue Ecorisk Assessment of Underwater UXO. Initiate Field Screening Techniques for MC in Marine Sediments.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 20px;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> </thead> <tbody> <tr> <td>Range Sustainability - formerly Ordnance Testing/Manufacture/Disposal</td> <td style="text-align: center;">0.320</td> <td style="text-align: center;">0.728</td> <td style="text-align: center;">1.099</td> <td style="text-align: center;">1.209</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>FY 04: Continued development of Confined Burn Facility (CBF): Completed construction and checkout and developed documentation for transition to other funding sources. Task will not be funded under 0817 after FY04 due to funding reductions. Completed task to evaluate Navy Training Lands Sustainability and prepare Initiation Decision Report (IDR). Initiated task to provide risk assessment methodology for decisions related to the long-term disposition of seafloor cables.</p> <p>FY 05: Initiate Navy Training Lands Sustainability tasks, including fate and transport modeling to support Range Condition Assessments. Initiate Enhanced Recycle of Range Scrap Ordnance. Initiate task to develop Ecological Soil Screening Levels for munitions contaminants.</p> <p>FY 06: Continue fate and transport modeling. Continue Enhanced Recycle of Range Scrap Ordnance. Continue Ecological Soil Screening Levels.</p> <p>FY 07: Complete fate and transport modeling. Continue Enhanced Recycle of Range Scrap Ordnance. Continue Ecological Soil Screening Levels.</p> </div>						FY 04	FY 05	FY 06	FY 07	Environmental Effects of Underwater Ordnance	0.845	0.850	0.588	1.150	RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Range Sustainability - formerly Ordnance Testing/Manufacture/Disposal	0.320	0.728	1.099	1.209	RDT&E Articles Quantity				
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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement																																
B. Accomplishments/Planned Program (Cont.) - Platform Repair & Maintenance with Minimal Environmental Impact																																		
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Ship Maintenance</td> <td style="text-align: center;">0.199</td> <td style="text-align: center;">1.208</td> <td style="text-align: center;">1.286</td> <td style="text-align: center;">1.521</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>FY 04: Continued convergent spray process for non-skid coatings. Initiated acid recycle system for pipe flushing wastes.</p> <p>FY 05: Continue convergent spray process for non-skid coatings. Initiate dry dock best management practices. Conduct alternative solvents demonstrations for ship maintenance operations. Initiate alternatives for NAVSEA targeted chemicals.</p> <p>FY06: Complete convergent spray process for non-skid coatings. Continue dry dock best management practices. Continue alternative solvents demonstrations for ship maintenance operations. Continue alternatives for NAVSEA targeted chemicals. Initiate mobile surface cleaner for drydock and industrial areas.</p> <p>FY07: Complete dry dock best management practices. Continue alternative solvents demonstrations for ship maintenance operations. Continue alternatives for NAVSEA targeted chemicals. Complete mobile surface cleaner for drydock and industrial areas.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> <th style="width: 15%;">FY 06</th> <th style="width: 15%;">FY 07</th> </tr> <tr> <td>Aviation Maintenance</td> <td style="text-align: center;">0.940</td> <td style="text-align: center;">1.274</td> <td style="text-align: center;">1.460</td> <td style="text-align: center;">1.561</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>FY 04: This thrust is new for FY04. Tasks include on-going shoreside efforts tranferred from Project 2210 to Project 0817. Continued and completed legacy 2210 aircraft maintenance projects. Completed high velocity oxygen fuel (HVOF) evaluations for hard chrome replacements. Completed thin film sulfuric acid anodize demonstration. Continued cadmium plating alternatives evaluations. Initiated alternative sealants. Conductd demonstration of F404 drive shaft cleaning.</p> <p>FY 05: Complete Non-chromated Post Treatments. Continue cadmium plating alternatives. Complete alternative sealant demonstration. Initiate demonstration for alternative solvents. Initiate radome repair task. Initiate ultra chem alternative to hard chome.</p> <p>FY 06: Complete radome repair task. Complete cadmium plating alternatives. Continue demonstration for alternative solvents. Continue ultra chem alternative to hard chome. Initiate efforts to evaluate chrome free alternatives for aircraft pretreatment (conversion coatings) and aircraft primer coatings.</p> <p>FY 07: Complete demonstrations for alternative solvents. Complete demonstration of ultra chem alternative to hard chome. Continue efforts to evaluate chrome free alternatives for aircraft pretreatment (conversion coatings) and aircraft primer coatings. Initiate evaluation of chrome free alternative for magnesium pretreatment.</p> </div>						FY 04	FY 05	FY 06	FY 07	Ship Maintenance	0.199	1.208	1.286	1.521	RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Aviation Maintenance	0.940	1.274	1.460	1.561	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07																														
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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement		
B. Accomplishments/Planned Program (Cont.) - Support Shore Readiness within Environmental Constraints				
	FY 04	FY 05	FY 06	FY 07
Base Operations and Maintenance	0.775	1.142	1.499	1.882
RDT&E Articles Quantity				
<p>FY 04: Completed demonstration of alternative AFFF. Continued Reduction of Solvent Based Paint task. Completed Triservice Methodology to Evaluate Alternative Cleaning Solvents. Conducted demonstrations evaluation of new cleaning solvents. Continued evaluation of Improved BMPs- Stormwater Treatment Technology.</p> <p>FY 05: Complete Reduction of Solvent Based Paint task. Complete evaluation of Improved BMPs- Stormwater Treatment Technology. Continue selected demonstrations of alternative solvents for industrial operations. Initiate task to evaluate fouling resistant permanent booms. Initiate demonstration of NoFoam system for fire fighting pumper trucks. Conduct evaluation of new process for lead based paint removal.</p> <p>FY06: Continue selected demonstrations of alternative solvents for industrial operations. Continue task to evaluate fouling resistant permanent booms. Continue demonstration of NoFoam system for fire fighting pumper trucks. Initiate effort to determine strategy for use of compliant diesel engines. Initiate effort to demonstrate oil recovery system.</p> <p>FY07: Continue selected demonstrations of alternative solvents for industrial operations. Complete task to evaluate fouling resistant permanent booms. Complete demonstration of NoFoam system for fire fighting pumper trucks. Complete strategy for use of compliant diesel engines. Continue effort to demonstrate oil recovery system. Initiate sustainable facilities demonstration.</p>				

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B. Accomplishments/Planned Program (Cont.) - Cost-Effective Management of Environmental Regulatory Requirements				
	FY 04	FY 05	FY 06	FY 07
Coastal Contamination and Contaminated Sediments	0.528	1.036	1.170	1.323
RDT&E Articles Quantity				
<p>FY 04: Completed site-specific validation methodologies for in-place sediment management. Continued task for evaluating Sediment Transport. Completed TMDL Technical Strategy.</p> <p>FY 05: Continue task for evaluating Sediment Transport. Initiate containment and monitoring strategies for contaminated sediments . Initiate effort to develop nonpoint source runoff coefficients.</p> <p>FY 06: Complete task for evaluating Sediment Transport Tools. Continue containment and monitoring strategies for contaminated sediments . Continue effort to develop nonpoint source runoff coefficients. Initiate contaminant mobility for in situ treatment technologies.</p> <p>FY07: Continue containment and monitoring strategies. Continue contaminant mobility for in situ treatment technologies.</p>				
	FY 04	FY 05	FY 06	FY 07
Environmental Monitoring and Reporting	0.420	0.571	0.490	0.615
RDT&E Articles Quantity				
<p>FY 04: Completed improved monitoring for stormwater assessment. Developed automated system for monitoring birds at Naval airstations.</p> <p>FY 05: Continue automated system for monitoring birds. Demonstrate TMDL Technical Strategy.</p> <p>FY06: Complete automated system for monitoring birds. Continue effort to develop nonpoint source runoff coefficients. Demonstrate automated reporting of toxic emissions. Initiate task for improves sensors for environmental monitoring.</p> <p>FY07: Demonstrate nonpoint source runoff coefficients. Continue improved sensors for environmental monitoring.</p>				

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement																																															
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: right;">FY 2004</th> <th style="text-align: right;">FY 2005</th> <th style="text-align: right;">FY 2006</th> <th style="text-align: right;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY2005 President's Budget:</td> <td style="text-align: right;">4.077</td> <td style="text-align: right;">6.885</td> <td style="text-align: right;">7.588</td> <td style="text-align: right;">9.184</td> </tr> <tr> <td>Current FY2006 President's Budget:</td> <td style="text-align: right;">4.027</td> <td style="text-align: right;">6.809</td> <td style="text-align: right;">7.592</td> <td style="text-align: right;">9.261</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.050</td> <td style="text-align: right; border-top: 1px solid black;">-0.076</td> <td style="text-align: right; border-top: 1px solid black;">0.004</td> <td style="text-align: right; border-top: 1px solid black;">0.077</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Economic assumptions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Other program adjustments</td> <td style="text-align: right;">-0.050</td> <td style="text-align: right;">-0.076</td> <td style="text-align: right;">0.004</td> <td style="text-align: right;">0.077</td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-0.050</td> <td style="text-align: right; border-top: 1px solid black;">-0.076</td> <td style="text-align: right; border-top: 1px solid black;">0.004</td> <td style="text-align: right; border-top: 1px solid black;">0.077</td> </tr> </tbody> </table> <p>Schedule: Not applicable.</p> <p>Technical: Not applicable.</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					FY2005 President's Budget:	4.077	6.885	7.588	9.184	Current FY2006 President's Budget:	4.027	6.809	7.592	9.261	Total Adjustments	-0.050	-0.076	0.004	0.077	Summary of Adjustments					Economic assumptions					Other program adjustments	-0.050	-0.076	0.004	0.077	Subtotal	-0.050	-0.076	0.004	0.077
	FY 2004	FY 2005	FY 2006	FY 2007																																													
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Summary of Adjustments																																																	
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D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
<p>P-1 Procurement Line Item No. & Name. Not Applicable.</p> <p>C-1 MILCON Project No. & Name. Not Applicable.</p> <p>(U) RELATED RDT&E: This project transitions shoreside pollution abatement technologies from two Navy Science and Technology programs and the Strategic Environmental Research and Development Program (SERDP). Project funding is leveraged by transitioning technologies to the Environmental Security Technology Certification Program (ESTCP) for final certification and by providing funding for Navy participation in ESTCP projects. Execution of this project is coordinated with related Marine Corps, Army, Air Force and NASA programs through direct coordination and active participation in the Joint Group for Pollution Prevention (JG-PP).</p> <p>(U) PE 0602233N, Readiness, Training, and Environmental Quality Technology Development</p> <p>(U) PE 0603712N, Environmental Quality, Logistics Advanced Technology Demonstrations</p> <p>(U) PE 0603716D, Strategic Environmental Research & Development Program (SERDP)</p> <p>(U) PE 0603851D, Environmental Security Technology Certification Program (ESTCP)</p>										

E. ACQUISITION STRATEGY:

(U) This project is categorized as Non-ACAT (Non Acquisition). The project delivers a broad spectrum of products that require a variety of acquisition processes to implement. Equipment products for Naval stations and other mission funded activities costing over 100K are often procured centrally through the Navy Pollution Prevention Equipment Program (PPEP) where as equipment products for Shipyards and other Navy Working Capital Fund (NWCF) activities costing over 100K are procured through their Capital Purchases Program (CPP). For both types of activities, equipment products costing less than 100K, and process changes not requiring the purchase of new equipment such as consumable material or product substitutions, are funded through the activity's operating budgets. Occasionally there is a technology that must be implemented as a specialized facility. These are acquired through the Military Construction (MCON) Program. All these acquisition processes are pursued using a common strategy that satisfies the needs of all the critical stakeholders: 1) Navy end user; 2) Funding sponsor for the Navy end user; 3) Cognizant environmental federal, state, and local regulators; 4) Other stakeholders with cognizance over the Navy process or operation being changed, and 5) The private or government organization that will produce the product.

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME							
RDT&E, N / BA-4			PE0603721N / Environmental Protection				0817 / Pollution Abatement							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Env. Effects of Underwater UXO	WR/PO	NFESC		0.645	varies	0.598	varies	0.061	varies	0.580	varies	Continuing	Continuing	N/A
Env. Effects of Underwater UXO	WR/PO	SSC/SD		0.200	varies	0.252	varies	0.527	varies	0.570	varies	Continuing	Continuing	N/A
Ordnance Testing/Manufact/Disp	WR/PO	NSWC/IH	15.666	0.100	varies	0.000		0.000		0.000		0.000	15.766	N/A
Training Lands Sustainability	WR/PO	NFESC	0.222	0.220	varies	0.728	varies	1.099	varies	1.209	varies	Continuing	Continuing	N/A
Ship Maint/Repair	WR/PO	NSWC/CD	10.582	0.050	varies	0.329	varies	0.476	varies	0.879	varies	Continuing	Continuing	N/A
Ship Maint/Repair	WR/PO	NFESC	5.040	0.149	varies	0.879	varies	0.810	varies	0.642	varies	Continuing	Continuing	N/A
Aviation Maintenance	WR/PO	NSWC PAX		0.745	varies	0.924	varies	1.071	varies	1.204	varies	Continuing	Continuing	N/A
Aviation Maintenance	WR/PO	NFESC		0.195	varies	0.350	varies	0.389	varies	0.357	varies	Continuing	Continuing	N/A
Base Operations & Maintenance	WR/PO	NFESC	16.558	0.775	varies	1.142	varies	1.499		1.882	varies	Continuing	Continuing	N/A
Coastal Contam/Contaminated Sed	WR/PO	SSC/SD	1.137	0.378	varies	0.812	varies	0.666	varies	0.875	varies	Continuing	Continuing	N/A
Coastal Contam/Contaminated Sed	WR/PO	NFESC	1.576	0.150	varies	0.224	varies	0.504	varies	0.448	varies	Continuing	Continuing	N/A
Env. Monitoring	WR/PO	NFESC	0.547	0.090	varies	0.291	varies	0.376	varies	0.615	varies	Continuing	Continuing	N/A
Env. Monitoring	WR/PO	SSC/SD	0.705	0.330	varies	0.280	varies	0.114	varies	0.000	varies	Continuing	Continuing	N/A
Subtotal Product Development			52.033	4.027		6.809		7.592		9.261				
Remarks: Performing Activities: Naval Surface Warfare Center, Carderock Division (NSWC/CD), Naval Facilities Engineering Service Center (NFESC), Naval Surface Warfare Center, Indian Head Division (NSWC/IH), Space and Warfare Systems Center, San Diego (SSC/SC), Naval Research Laboratory (NRL). Total Prior Years Cost: Summation starts with FY80. Subtotal does not include performing activities from prior years that are no longer performing activities. Award Dates: About 55% of the project is executed via contracts awarded by the performing activities.														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks: Included in Product Development costs.														

R-1 SHOPPING LIST - Line No. 62

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 0817 / Pollution Abatement									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation													0.000		
Operational Test & Evaluation													0.000		
Live Fire Test & Evaluation													0.000		
Test Assets													0.000		
Tooling													0.000		
GFE													0.000		
Award Fees													0.000		
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks: Not applicable.															
Contractor Engineering Support													0.000		
Government Engineering Support													0.000		
Program Management Support													0.000		
Travel													0.000		
Labor (Research Personnel)													0.000		
SBIR Assessment													0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000		
Remarks: Not applicable.															
Total Cost			52.033	4.027		6.809		7.592		9.261		0.000			
Remarks:															

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 9204 / Marine Mammal Research			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.025	2.080	4.536	4.576	4.629	4.668	4.715	4.764
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Navy has been subject to litigation with regard to the alleged injuring and killing of marine animals. Since Fleet operation and training areas coincide with known or probable marine mammal habitats, migration routes, or breeding areas, such incidents are likely to continue into the future. The increasing public interest and pressure has given way to escalating Fleet costs. For example, Fleet activities have been interrupted or altogether cancelled; and, new ship construction shock trials have required Federal permits, extensive planning, and mitigation measures to minimize the potential impacts on protected marine animals. In addition, the deployment of new platform detection and monitoring systems that use active acoustics are under severe scrutiny for their potential effects on whales and other marine animals.

(U) This program will develop planning and monitoring tools to aid the Fleet in minimizing contact with, and harassment of, protected marine animals during operations, exercises, training, and testing. These capabilities will encompass historical and newly acquired data and analysis on marine animal locations and susceptibilities, computer databases that indicate potential conflicts with marine animals, and new scientific insights to help identify mitigation options. Accurate and timely monitoring and prediction of the movements of whales and other protected marine animals, plus an enhanced knowledge of how marine animals may react to Fleet activity (e.g., hearing and behavioral effects) will: reduce Navy interaction with these animals; minimize the risk that legally-imposed monitoring and avoidance measures will adversely affect Fleet operations and exercises; minimize the substantial costs associated with operations, exercises, and tests that have to be modified or curtailed as a result of concerns about protected marine animals; and potentially avoid lawsuits related to actual or anticipated problems with protected animals.

R-1 SHOPPING LIST - Line No. 62

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 9204 / Marine Mammal Research																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Marine Mammal Location, Abundance and Movement</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.980</td><td style="text-align: center;">1.981</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Marine Mammal Location, Abundance and Movement	0.000	0.000	1.980	1.981					
	FY 04	FY 05	FY 06	FY 07															
Marine Mammal Location, Abundance and Movement	0.000	0.000	1.980	1.981															
<div style="border: 1px solid black; padding: 5px;"><p>FY 06: (U) Initiate investigation in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.</p><p>FY 07: (U) Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Criteria and Thresholds, Physiology and Behavior, and Effects of Sound</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.940</td><td style="text-align: center;">0.941</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	0.000	0.000	0.940	0.941					
	FY 04	FY 05	FY 06	FY 07															
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	0.000	0.000	0.940	0.941															
<div style="border: 1px solid black; padding: 5px;"><p>FY 06: (U) Initiate investigation in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.</p><p>FY 07: (U) Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.</p></div>																			

R-1 SHOPPING LIST - Line No. 62

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 9204 / Marine Mammal Research																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment	0.000	0.000	1.350	1.351															
<div style="border: 1px solid black; padding: 10px; min-height: 100px;"><p>FY 06: (U) Initiate mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.</p><p>FY 07: (U) Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Acoustic Source Propagation</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.266</td><td style="text-align: center;">0.303</td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Acoustic Source Propagation	0.000	0.000	0.266	0.303					
	FY 04	FY 05	FY 06	FY 07															
Acoustic Source Propagation	0.000	0.000	0.266	0.303															
<div style="border: 1px solid black; padding: 10px; min-height: 100px;"><p>FY 06: (U) Initiate investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.</p><p>FY 07: (U) Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.</p></div>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 9204 / Marine Mammal Research		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 05 Pres Controls)				
Current BES/President's Budget:			4.536	4.576
Total Adjustments	0.000	0.000	4.536	4.576
Summary of Adjustments				
Marine Mammal RDT&E Project Line			3.000	3.000
Marine Mammal RDT&E Funding Plus Up			1.501	1.506
Other Program Adjustments	0.000	0.000	0.035	0.070
Subtotal	0.000	0.000	4.536	4.576
Schedule:				
Not applicable.				
Technical:				
Not applicable.				

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 9204 / Marine Mammal Research					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) Related RDT&E: (U) Office of Naval Research (PE 601153 / PE 602435 / PE 602782 / PE 603235)										
(U) Strategic Environmental Research & Development Program (SERDP)										
(U) National Oceanographic Partnership Program (NOPP)										
E. ACQUISITION STRATEGY:										
(U) RDT&E Contracts are Competitive Procurements.										

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			PE0603721N / Environmental Protection			9204 / Marine Mammal Research								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development														
Primary Hardware Development														
Primary Hardware Development														
Primary Hardware Development														
Primary Hardware Development														
Primary Hardware Development														
Ancillary Hardware Development														
Component Development														
Ship Integration														
Ship Suitability														
Systems Engineering														
Training Development														
Licenses														
Tooling														
GFE														
Award Fees														
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000				
Remarks: (1) Hardware Development and Systems Engineering Tasks use CPFF Delivery Contracts for Continuing Development of Pollution Abatement Hardware and Ship Systems Engineering Analysis.														
Development Support														
Software Development														
Training Development														
Integrated Logistics Support														
Configuration Management														
Technical Data														
GFE														
Award Fees														
Subtotal Support			0.000	0.000		0.000		0.000		0.000				
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RD&E, N / BA-4			PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 9204 / Marine Mammal Research								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Misc. Govt Labs/Misc Contr	9.112					4.536		4.576				
Developmental Test & Evaluation														
Developmental Test & Evaluation														
Process Control Engineering														
Developmental Test & Evaluation														
Developmental Test & Evaluation														
Developmental Test & Evaluation														
Developmental Test & Evaluation														
Operational Test & Evaluation														
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			9.112	0.000		0.000		4.536		4.576				
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000		0.000				
Remarks:														
Total Cost			9.112	0.000		0.000		4.536		4.576				
Remarks:														

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																				DATE: February 2005									
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												
RDT&E, N / BA-4					PE0603721N / Environmental Protection												9204 / Marine Mammal Research												
Fiscal Year	2004				2005				2006				2007				2008				2009								
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Marine Mammal Location, Abundance, and Movement																													
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound																													
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessmen																													
Acoustic Source Propagation																													

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Exhibit R-4, Schedule Profile

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603724N Navy Energy Program			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	4.572	7.719	1.595	1.607	1.591	1.755	1.805	1.860
0838/Mobility Fuels	1.694	1.479	1.595	1.607	1.591	1.755	1.805	1.860
2868/Proton Exchange Membrane Fuel Cells	2.878	2.774						
9498/Megawatt Molten Carbonate Fuel Cell Demo		3.466						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

0848/Mobility Fuels - This program supports projects to evaluate, adapt, and demonstrate energy related technologies for Navy aircraft and ship operations to: (a) increase fuel-related weapons systems capabilities such as range and time on station; (b) reduce energy costs; (c) apply energy technologies that improve environmental compliance; (d) relax restrictive fuel specification requirements to reduce cost and increase availability worldwide; (e) provide guidance to fleet operators for the safe use of commercial grade or off-specification fuels when military specification fuels are unavailable or in short supply; and (f) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems. This program supports the achievement of legislated, White house, Department of Defense, and Navy Energy Management Goals. It also responds to direction from the Office of the Secretary of Defense, the Secretary of the Navy, and the Chief of Naval Operations to make up-front investment in technologies that reduce future cost of operation and ownership of the fleet and supporting infrastructure.

2868/Proton Exchange Membrane Fuel Cells - This is a Congressional add. Manufacture 12 Proton Exchange Membrane (PEM) Fuel Cell systems, install at Navy facility in Hawaii to be determined (TBD), operate for 12 months, collect and report performance data, remove systems and return sites to original condition. The purpose of the field test is to demonstrate the reliability and life of PEM fuel cell systems that incorporate an advanced membrane electrode assembly that enhances producibility, performance, and reduces cost. The military requirement addressed is the facility requirement for electrical power and the need to find alternative, affordable energy sources.

9498/Megawatt (MW) Molten Carbonate Fuel Cell Demo - This is a Congressional add. Design and manufacture one 1 MW molten carbonate fuel cell and install at a Navy facility in California TBD, operate for 12 months, collect and report performance data. The purpose of the field test is to demonstrate the feasibility of the molten carbonate fuel cell to interface with the associated power electronics for electrical grid connection and provide reliable electrical power. The military requirement addressed is the facility requirement for electrical power and the need to find alternative affordable energy sources.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 1 of 13)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME 0603724N Navy Energy Program				PROJECT NUMBER AND NAME 0838 Mobility Fuels			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	1.694	1.479	1.595	1.607	1.591	1.755	1.805	1.860

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides data through engine and fuel system tests which relate the effects of changes in Navy fuel procurement specification properties to the performance and reliability of Naval ship and aircraft engines and fuel systems. This information is required to: (a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; (b) provide guidance to fleet operators for the safe use of off-specification or commercial grade fuels when military specification fuels are unavailable or in short supply; and (c) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry. Recent problems with fuel quality have adversely affected ship and aircraft system performance and reliability and resulted in degradation of fuel in storage. The resulting readiness impacts, additional maintenance costs, and the cost of lost equipment, although difficult to quantify, are many times the cost of this product. Over the next decade, the potential for fuel quality related problems will increase because of changing industry practices required to comply with new environmental regulations. This project represents the only investment designed to maintain the Navy's ability to operate as a "smart" customer for fuels that cost over \$2.5 B per year for procurement, transport, storage and consuming and are essential to fleet operations.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME 0603724N Navy Energy Program	PROJECT NUMBER AND NAME 0838 Mobility Fuels		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Aircraft Fuels	0.714	0.700	0.795	0.800
<p>Performs development, test and evaluation work on Naval aircraft fuels to: a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; b) provide guidance to fleet operators for the safe use of military aircraft that include new additives or are from new sources including synthetics; and c) make needed periodic changes to the fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry.</p> <p>Continued development and evaluation of JP-5 copper contamination removal system. Initiated development of an equipment/fuel qualification procedure to evaluate and approve synthetic aircraft fuels. Completed evaluation of impacts of copper contamination on aircraft engine maintenance/performance.</p> <p>Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra clean, low sulfur jet fuels. Continue development and evaluation of JP-5 copper contamination removal system. Initiate development of shipboard-based sensors and instruments to rapidly determine critical jet fuel properties. Implement +100 thermal stability enhancing jet fuel additive across T-45 (Training aircraft fleet) fleet for shore-based application.</p> <p>Continue development of JP-5 copper contamination removal system. Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra-clean, low sulfur jet fuels. Continue development of shipboard-based sensors and instruments to rapidly determine critical jet fuel properties.</p> <p>Conduct field trial of copper contamination system. Continue development of shipboard-based sensors and instruments to rapidly determine critical jet fuel properties. Continue development of a qualification procedure to evaluate and approve utilization of synthetic and ultra-clean, low sulfur jet fuels.</p>				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005											
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-04	PROGRAM ELEMENT NUMBER AND NAME 0603724N Navy Energy Program	PROJECT NUMBER AND NAME 0838 Mobility Fuels												
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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603724N Navy Energy Program			PROJECT NUMBER AND NAME 2868 Proton Exchange Membrane			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.878	2.774						
RDT&E Articles Qty		12						
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This is a Congressional add. Manufacture of 12 Proton Exchange Membrane (PEM) Fuel Cell systems, install at Navy facility in Hawaii to be determined (TBD), operate for 12 months, collect and report performance data, remove systems and return sites to original condition. The purpose of the field test is to demonstrate the reliability and life of PEM fuel cell systems that incorporate an advanced membrane electrode assembly that enhances producibility, performance, and reduces cost. The military requirement addressed is the facility requirement for electrical power and the need to find alternative, affordable energy sources. Project value includes potential for cost savings, environmental mitigation, and energy security for electrical power production.</p>								

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Exhibit R-2, RD TEN Budget Item Justification
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Exhibit R-2, RD TEN Budget Item Justification
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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603724N Navy Energy Program			PROJECT NUMBER AND NAME 9498 Megawatt Molten Carbonate Fuel Cell Demo			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		3.466						
RDT&E Articles Qty		1						
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This is a Congressional add. Design and manufacture one 1 Megawatt molten carbonate fuel cell and install at a Navy facility in California (TBD), operate for 12 months, collect and report performance data. The purpose of the field test is to demonstrate the feasibility of the molten carbonate fuel cell to interface with the associated power electronics for electrical grid connection and provide reliable electrical power. The military requirement addressed is the facility requirement for electrical power and the need to find alternative, affordable energy sources. Project value includes potential for cost savings, environmental mitigation, and energy security for electrical power production.</p>								

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Exhibit R-2, RDTE Budget Item Justification
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<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: center;">FY 04</th> <th style="width: 10%; text-align: center;">FY 05</th> <th style="width: 10%; text-align: center;">FY 06</th> <th style="width: 10%; text-align: center;">FY 07</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget:</td> <td></td> <td style="text-align: right;">0.000</td> <td></td> <td></td> </tr> <tr> <td>Current BES/President's Budget</td> <td></td> <td style="text-align: right;">3.466</td> <td></td> <td></td> </tr> <tr> <td>Total Adjustments</td> <td></td> <td style="text-align: right; border-top: 1px solid black;">3.466</td> <td></td> <td></td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Congressional program reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional undistributed reductions</td> <td></td> <td style="text-align: right;">-0.033</td> <td></td> <td></td> </tr> <tr> <td> Congressional rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR/STTR Transfer</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> OSD</td> <td></td> <td style="text-align: right;">-0.001</td> <td></td> <td></td> </tr> <tr> <td> Navy (FMB/Sponsor/NAVAIR)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Economic Assumptions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Reprogrammings</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional increases</td> <td></td> <td style="text-align: right;">3.500</td> <td></td> <td></td> </tr> <tr> <td> Subtotal</td> <td></td> <td style="text-align: right; border-top: 1px solid black;">3.466</td> <td></td> <td></td> </tr> <tr> <td colspan="5" style="padding-top: 20px;">Schedule:</td> </tr> <tr> <td> Not Applicable</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5" style="padding-top: 20px;">Technical:</td> </tr> <tr> <td> Not Applicable</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						FY 04	FY 05	FY 06	FY 07	Funding:					Previous President's Budget:		0.000			Current BES/President's Budget		3.466			Total Adjustments		3.466			Summary of Adjustments					Congressional program reductions					Congressional undistributed reductions		-0.033			Congressional rescissions					SBIR/STTR Transfer					OSD		-0.001			Navy (FMB/Sponsor/NAVAIR)					Economic Assumptions					Reprogrammings					Congressional increases		3.500			Subtotal		3.466			Schedule:					Not Applicable					Technical:					Not Applicable				
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R-1 SHOPPING LIST - Item No. 63

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603724N Navy Energy Program			PROJECT NUMBER AND NAME 9498 Megawatt Molten Carbonate					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
N/A										
E. ACQUISITION STRATEGY:										
Program management and acquisition by Naval Air Warfare Center Weapons Division (NAWCWD). Technical management by NAWCWD. Contracting strategy is sole source firm fixed price contract with Fuel Cell Energy of Danbury Connecticut.										

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EXHIBIT R-2, RDT&E Budget Item Justification							February 2005		
Appropriation/Budget Activity RDT&E.A BA4				R-1 Item Nomenclature: 0603725N/ Facilities Improvement					
COST (\$ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Total PE Cost	1.424	4.577	4.158	4.335	4.314	4.235	4.119	4.161	
0995 Facilities System	1.424	1.606	4.158	4.335	4.314	4.235	4.119	4.161	
9538 Playas Instrumentation Network (Congress' add)	0.000	2.971	0.000	0.000	0.000	0.000	0.000	0.000	
A. Mission Description and Budget Item Justification: (U) This program provides for capabilities to a) overcome performance limitations and reduce the life cycle cost of shore facilities, and b) provide protection against terrorist attacks for shore installations and their operations. The program focuses on technical and operational issues of specific Navy interest, where there are no unbiased test validated Commercial Off the Shelf (COTS) solutions available, and where timely capabilities may not materialize without specific demonstration or validation by the Navy. Additionally, the program completes the development of technologies originating from Navy, DOD and other sources of Science and Technology programs, including the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST) and Department of Energy (DOE). Validated technologies are implemented in the Navy's Military Construction (MILCON) and Sustainment Restoration and Modernization (SRM) program, and Antiterrorism and Force Protection (ATFP) Other Procurement, Navy (OP,N) program. Project 0995 addresses three Navy facilities requirements during the fiscal years FY 2004 through FY 2007: Waterfront Facilities Repair and Upgrade, Facilities Technologies to Reduce the Cost of Sustainment, Restoration and Modernization, and Modular Hybrid Pier for reducing the total ownership cost of future facilities. This project is consistent with recommendation of two National Academy of Sciences Reports: "The Role of Federal Agencies in Fostering New Technology and Innovation in Building" and "Federal Policies to Foster Innovation and Improvement in Constructed Facilities." This project also addresses Antiterrorism Force Protection, starting in FY06, which addresses selective topics in simulation and risk modeling and material technologies to reduce the vulnerability of installations and reduce the acquisition and operating costs of protective technologies. The demonstrations and validations provide the independent, technical and operational test data for the development of competitive performance specifications to acquire the required capabilities.									
B. Program Change Summary:									
Funding:		FY 2004	FY 2005	FY 2006	FY 2007				
FY05 President's Budget		1.424	1.621	1.536	1.832				
FY06 President's Budget		1.424	4.577	4.158	4.335				
Total Adjustments		0.000	2.956	2.622	2.503				
Summary of Adjustments									
Force Protection PE Realignment		0.000	-0.015	2.622	2.503				
Playas Instrumentation Network			2.971						
C. Other Program Funding Summary: Provided in R-2a.									
D. Acquisition Strategy: Provided in R-2a.									
E. Performance Metrics: Provided in R-4.									

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603725N / Facilities Improvement			PROJECT NUMBER AND NAME 0995/ Facilities System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	1.424	1.606	4.158	4.335	4.314	4.235	4.199	4.161
RDT&E Articles Qty		2	3	4				
<p>A. Mission Description and Budget Item Justification:</p> <p>(U) This program provides the Navy with new civil engineering capabilities that are required to overcome specific performance limitations of Naval shore facilities while reducing the cost of sustaining the Naval shore infrastructure. The program focuses available resources on satisfying facility requirements where the Navy is a major stakeholder. The program completes the development and validation of facility technologies originating in Navy Science and Technology programs, plus a variety of other sources which includes the National Science Foundation (NSF) and the National Institute of Standards and Technology (NIST). Project Y0995 is addressing three Navy facilities requirements during the fiscal years FY 2004 through FY 2007: Waterfront Facilities Repair and Upgrade, Facilities Technologies to Reduce the Cost of Sustainment, Restoration and Modernization and Modular Hybrid Pier. The execution of this program is consistent with the findings and recommendation of two National Academy of Sciences Reports: "The Role of Federal Agencies in Fostering New Technology and Innovation in Building" and "Federal Policies to Foster Innovation and Improvement in Constructed Facilities."</p> <p>(U) WATERFRONT FACILITIES REPAIR AND UPGRADE</p> <p>(U) Over 75% of the Navy's waterfront facilities are over 45 years old. They were designed for a service life of 25 years and to satisfy the mission requirements existing at that time. The overaged reinforced concrete requires costly and repetitive repairs. In addition, to accomplish more pier side ship maintenance and thus reduce drydock costs, these piers must be strengthened to support concentrated crane loads up to 140 tons when piers were originally designed for no concentrated loads. This sub-project addresses new materials and design methods to extend the service life of existing waterfront facilities by an additional 15 or more years, and conventional concrete patches and composite-enhanced repairs. Other initiatives include; new longer-lasting low-maintenance fendering systems that eliminate the need for the frequent replacement of timber piles and fenders; a new Impluse Load Method (ILM) for accurately and quickly determining the vertical load capacity of piers and wharves; and a new Swinging Weight Deflectometer (SWD) technique to determine the lateral stability of piers for earthquake forces and docking ship's impact. Using this new technology at a cost of \$1-2M for repairs and upgrades per pier will result in \$50M in cost avoidance for demolition and replacement.</p> <p>(U) FACILITY TECHNOLOGIES TO REDUCE THE COST OF SUSTAINMENT, RESTORATION AND MODERNIZATION (SRM)</p> <p>(U) This effort will demonstrate and validate the cost and reliability of advanced technologies in order to assure their acceptance and implementation in traditionally conservative public works and construction industries. The effort will accelerate the validation, commercialization, and wide-spread implementation of the facility technologies urgently required to reduce the cost of correcting the deficiencies in the Navy's SRM backlog. Estimated returns on these investments are better than 60 to 1.</p>								

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603725N / Facilities Improvement	PROJECT NUMBER AND NAME 0995/ Facilities System
<p>(U) MODULAR HYBRID PIER (MHP)</p> <p>(U) Modular Hybrid Pier started in FY 02 to achieve completions required by construction acquisition schedules.</p> <p>The Navy is faced with the necessity of recapitalizing a large portion of its waterfront infrastructure over the next several decades. The Modular Hybrid Pier initiative develops and validates innovative material and design technologies for a mission-flexible waterfront infrastructure characterized by significantly reduced total ownership cost and increased mission flexibility. The proceeding sub-project Waterfront Facilities Repair and Upgrade will enable the Navy to economically extend the useful service life of existing piers and wharves. While reducing the need for immediate replacement, eventual replacement will be required. This MHP sub-project provides improved technology for new piers. Emerging innovative structural and materials technologies, particularly those that will transition from the Navy's applied research and advanced development program, will provide enhanced-capability. Structures may have a comparable initial cost yet have far less maintenance and repair costs. Use of advanced materials and high performance lightweight concrete will produce structures that have twice the economic service life of the conventional piers. Modular design will enable off-site fabrication in pre-cast plants that will shorten the duration and lower the cost relative to conventional on-site construction. Plant fabrication will vastly improve repair-free durability because of superior quality control and application of high performance concrete and post-tensioning technologies. The modular concept will facilitate change-out of components for modifications to increase or capacity to adapt to future in ship designs. Mobility/relocatability of barge size modules through flotation is a significant new capability option which saves money and provides new military worth. An economic analysis has shown that a modular hybrid (deployable) pier will have a Net Present Value (NPV) cost that is \$15M less over its service life than that for a conventional pier constructed of ordinary reinforced concrete. The MHP will have superior operational benefits to ship/port operations.</p> <p>(U) ANTITERRORISM/FORCE PROTECTION (ATFP)</p> <p>(U) Protection of the Navy Installations against terrorist activities requires development and deployment of advanced technology for force protection capabilities that are cost effective. Manpower costs of protection systems with today's technology are very high. Performance is not adequate to reduce vulnerability cost-effective. This Antiterrorism and Force Protection Ashore Project will develop, demonstrate and validate technologies for the following: access control and perimeter denial; waterside protection against craft and swimmer intrusion; secure and efficient operations centers and emergency centers (including human and information supports systems); construction integrated surveillance sensors and robotic systems for intruder detection; material systems to improve utilities security and recovery; and material concepts to reduce injury and death. Through demonstration and validation of risk modeling and simulation models, the potential of emerging technologies will be evaluated and installation security strategies that reduce manpower and other costs will be formulated. Installation protection concepts against attacks from the air will be identified and jointly demonstrated. The demonstrations and validations derive from advanced technology from science and technology programs of government academia and industry. The technology produces data for performance specifications for competitive procurement. All work will be coordinated with other programs and through industry forums as appropriate.</p>		

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603725N / Facilities Improvement	PROJECT NUMBER AND NAME 0995 / Facilities System		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Waterfront Repair and Upgrade	0.000	0.000	0.100	0.000
RDT&E Articles Quantity	1			
<p>FY 06: Complete validation testing and evaluation of Swinging Weight Deflectometer (new capability) method for determining the remaining strength of piers to resist lateral loads from berthing ships. Initiate testing of agents to reduce corrosion inducing chloride ion penetration rates.</p>				
	FY 04	FY 05	FY 06	FY 07
Sustainment, Restoration & Modernization Tech Redu	0.000	0.000	0.970	1.336
RDT&E Articles Quantity				
<p>FY 06: Complete field (validation) testing of high temperature pavement joint sealants. Complete testing (interim validation) of flexible (non-cracking) marking paint for bituminous airfield pavements. Continue testing of pile encasement to extend life of decomposing concrete. FY 07: Complete testing of pile encasement to extend life of decomposing concrete. Initiate validation testing of high return-on-investment facilities technologies delivered from ONR FNC: Total Ownership Cost Reduction and other research by private/public sector.</p>				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE0603725N / Facilities Improvement	PROJECT NUMBER AND NAME 0995 / Facilities System		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Modular Hybrid Pier	1.424	1.606	0.465	0.500
RDT&E Articles Quantity	2	2	77	
<p>FY 04: Completed mooring design for test structure comprised of two floating modules with full scale mooring. Completed fabrication of two modules for test structure. Structurally joined test structure modules. Demonstrated ability to meet performance requirements for durable, high strength lightweight concrete on large test articles.</p> <p>FY 05: Construct test structure mooring and moor modules. Demonstrate ability to hold strict tolerances during module assembly and mooring integration. Install and test shore access ramp and support bearings for required strength and rotational/traditional capabilities. Install and test full scale MHP service utility mock-ups at ramp articulation points.</p> <p>FY 06: Complete structural and hydrodynamic tests (DT/OT) on critical subassemblies of demonstration structure (assembled modules and moorings).</p> <p>FY 07: Initiate test planning and testing for first prototype MHP.</p>				
	FY 04	FY 05	FY 06	FY 07
Antiterrorism/Force Protection	0.000	0.000	2.623	2.499
RDT&E Articles Quantity				
<p>FY 06: Develop and apply risk modeling to evaluate the potential of emerging technology and formulate installation protection concepts and operations that require reduced life cycle cost including manpower. The following technology areas will be explored for validation testing, cost reduction potential and transition to procurement: access control technology and configuration concepts; access denial concepts and technology against swimmers and submerged vehicles; secure operations centers and reduced manning concepts; material systems for utilities security and recovery; injury reduction design and material concepts, devices and systems; robotic devices to reduce human risk, enhance longevity and reliability of certain dangerous and repetitive functions in facilities protection; demonstrate simulation tools for resolving complex issues, such as terrorist attack probabilities and patterns and optimum defensive concepts for levels of technology; and demonstrate concepts of protection from air attacks. Appropriate test validations will be initiated.</p> <p>FY 07: Validation of decision support risk modeling and simulation tools for Installation Protection Validation of Command Center security technology and reduced manning. Demonstration of robotic and neural networks in high risk and complex installation security functions. Concept demonstrations of protection from air attacks. Demonstration of material concepts in enhancing the probability of utilities continuity following and attack. Advanced access control technology demonstrations will reduce cost.</p>				

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	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	To Complete	Total Cost																																											
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Exhibit R-3 Cost Analysis (page 1)								February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			PE0603725N / Facilities Improvement			0995 / Facilities System								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Waterfront Facilities Repair & Upgrade	WX	NFESC, Pt Hueneme, CA	1.760					0.100	10/05			nominal varies	cont.	na
	WR	NUWC, New London, CT	0.687										0.687	
	WR	EFANW, Poulsbo, WA	0.012										0.012	
	FP	MCA Engrg, Costa Mesa, CA	0.045										0.045	
Sustainment, Restoration & Modernization Tech	WX	NFESC, Pt Hueneme, CA	3.583					0.370	10/05	0.400	10/06	nominal varies	cont.	na
	FP	CERF, Washington, DC	0.045										0.045	
	RC	LANTDIV, Norfolk, VA	0.051										0.051	
	FP	NAS Misawa, Misawa, Japan	0.028										0.028	
	WR	SWDIV, San Diego, CA	0.002										0.002	
	FP	Han Padron Inc., NY	0.019										0.019	
	FP	Atmos Anal. &Consult, Inc.	0.006										0.006	
	RC	N. State Univ. Aberdeen, MD	0.042										0.042	
	WR	PWD, NWS, Charleston, SC	0.081										0.081	
	FP	ADC, Inc.	0.021										0.021	
	FP	Weston Geophysical, MA	0.025										0.025	
	FP	Northwestern Univ., IL	0.024										0.024	
	FP	Blackledge Diving	0.010										0.010	
	FP	ABC Painting, CA	0.032										0.032	
	FP	Polyspec Corp, TX	0.060										0.060	
	FP	Abras. Blast & Coat, CA	0.030										0.030	
	MP	U. S. Army Huntsville, AL	0.100										0.100	
	RC	Contractors TBD	0.050					0.600	03/06	0.936	03/07	cont.	cont.	
Modular Hybrid Pier	WR	NFESC, Pt Hueneeme, CA	0.625	0.135	10/03	0.730	10/04	0.365	10/05	0.500	10/06	nominal varies	cont.	na
	WR	SWDIV, San Diego, CA	0.000	0.142	06/04	0.050	10/04						0.192	
	FP	BergerAbam. Seattle, WA	2.308			0.300	03/05	0.100	03/06				2.708	
	RC	Contractors TBD	0.000	1.147	09/04	0.526	10/05						1.673	
Antiterrorism/Force Protection	TBD	NASNI Test Bed, San Diego, CA	0.000	0.000		0.000		0.600	TBD	0.600	TBD	Cont.	Cont	
	TBD	NFESC, Port Hueneeme, CA	0.000	0.000		0.000		0.400	TBD	0.400	TBD	Cont.	Cont	
	TBD	NSWC Panama City & Dahlgren	0.000	0.000		0.000		0.400	TBD	0.100	TBD	Cont.	Cont	
	TBD	NAWC CHINA LAKE	0.000	0.000		0.000		0.200	TBD	0.200	TBD	Cont.	Cont	
	TBD	SSC San Diego	0.000	0.000		0.000		0.523	TBD	0.699	TBD	Cont.	Cont	
			9.646	1.424		1.606		3.658		3.835		0.000	20.169	
Remarks: Total Prior Years Cost summation does not include performing activities from projects completed in prior years.														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000				0.000	0.000	
Remarks: Included in Product Development costs.														

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(Exhibit R-3, page 1 of 2)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			PE0603725N / Facilities improvement			0995 / Facilities System								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation								0.500	TBD	0.500	TBD	Cont.	Cont.	
Operational Test & Evaluation													0.000	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			0.000	0.000		0.000		0.500		0.500		0.000	1.000	
Remarks: Not applicable.														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support													0.000	
Travel													0.000	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks: Not applicable.														
Total Cost			9.646	1.424		1.606		4.158		4.335		0.000	21.169	
Remarks:														

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:															
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												February 2005			
RDT&E, N / BA-4												PE0603725N / Facilities Improvement												0995 / Facilities System															
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011										
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4											
MHP Acquisition Milestones								MSC ▲									IOC ★		FRP Dec ▲																				
MHP Systems Test Bed																																							
MHP System Development							PDR ▲												CDR ▲																				
Test & Evaluation Milestones																																							
Development Test																																							
Operational Test																																							
Production Milestones																																							
LRIP (1st MHP) FY 07							LRIP I Start ▲																																
FRP FY 09																																							
Deliveries																																							

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R-4 Schedule Profile

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CLASSIFICATION:

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R-1 Line Item No. 64

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R-4a Schedule Detail

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CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification					DATE: January 2005			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4				R-1 ITEM NOMENCLATURE 0603739N Navy Logistic Productivity				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE0603739N Cost	18.429	19.393	8.909	6.482	3.833	3.103	3.236	3.374
2767 Collaborative Logistics Productivity Program **	4.918	4.160	0.000	0.000	0.000	0.000	0.000	0.000
2920 Ordnance Management	4.845	4.374	5.930	3.650	0.936	0.000	0.000	0.000
2955 JEDMICS	3.371	2.934	2.979	2.832	2.897	3.103	3.236	3.374
9047 JEDMICS Enhancements **	2.402	1.981	0.000	0.000	0.000	0.000	0.000	0.000
9358 Life Cycle Savings Through Machine Technology **	2.893	1.981	0.000	0.000	0.000	0.000	0.000	0.000
9539 Defense Integrated Technical Data Center **	0.000	0.991	0.000	0.000	0.000	0.000	0.000	0.000
9540 Navy Logistics Research Readiness Center **	0.000	0.991	0.000	0.000	0.000	0.000	0.000	0.000
9541 Service Life Extension of Avionics Legacy Systems **		1.981						
Quantity of RDT&E Articles	Not Applicable							
<div>** - Congressional Adds Collaborative Logistics Productivity Program (formally VSIP) is a Congressional add executed under project unit T2767 in FYs 2000 - 2005. Life Cycle Savings Through Machine Technology - FY 2004 and FY 2005 Congressional Add. Defense Integrated Technical Data Center - FY 2005 Congressional Add Navy Logistics Research Readiness Center - FY 2005 Congressional Add JEDMICS Enhancements - FY 2004 and FY 2005 Congressional Add.</div> <div>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Ordnance Management - Covers the conversion of Naval Ammunition Logistics Center(NALC) systems to the Ordnance Information Systems(OIS). These upgrades were previously procured with Operation and Maintenance, Navy funding. JEDMICS - In FY85 Congress directed the Services and Defense Logistics Agency to permanently capture, manage and control engineering data in digital format so it would be available to support competitive spares re-procurement. As of April 2000, the Joint Engineering Data Management Information & Control System (JEDMICS) program manages and controls 78,500,000 engineering images and has 32,000 authorized users responsible for over 70,000 user sessions per month. Over 2 million digital images are retrieved each month. New data and new users are added each month as DoD re-engineers its business processes to take advantage of digital data that is managed and controlled for corporate reuse. The JEDMICS system is deployed at 29 interoperable sites that service 600 locations worldwide. Data stored in JEDMICS is used for Logistics Support, Spares re-procurement, Weapons Systems procurement, Engineering, Maintenance, Distribution, Manufacturing, Air National Guard and Deployed Engineering Technical Services organizations. JEDMICS facilitates work process re-design since its brings the electronic drawings to the desktop, shop floor or flight line in real time eliminating walk, wait and slack time to retrieve drawings. Additionally, Administrative Lead Time, Repair Turn Around Time, ECP processing time, demilitarization time, and all cycle times dependent on engineering data have decreased with the real time availability of digital engineering data. JEDMICS also facilitates Electronic Commerce since it produces digital technical data packages that can be forwarded along with an electronic order. Funds are for Commercial Off The Shelf (COTS) evaluation, integration, and test and evaluation. JEDMICS funds development efforts which are required to integrate COTS upgrades.</div>								

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EXHIBIT R-2a, RDT&E Project Justification						DATE: January 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity		PROJECT NUMBER AND NAME T2920 Ordnance Management					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		4.845	4.374	5.930	3.650	0.936	0.000	0.000	0.000
RDT&E Articles Qty									
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>Naval Ammunition Logistics Center(NALC) systems conversion to the Ordnance Information Systems(OIS): The OIS is an umbrella concept that integrates approximately 12 different functions that are currently produced by "stove-pipe" systems. OIS is an integrated suite of tools that uses the latest available information technology and best commercial practices to provide timely, relevant and accurate ordnance information and global ordnance visibility. It integrates wholesale, retail, and unique ordnance decision support systems to facilitate global ordnance positioning and information sharing across the DoN ordnance community to maximize warfighter support. Without a robust ordnance information system, the Navy and Marine Corps Aviation's ability to prevail in combat is jeopardized. This degradation will increase exponentially in the joint environment and the RDT&E initiatives listed herein are designed to ensure maximum Information Technology(IT) capability.</p>									

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EXHIBIT R-2a, RDT&E Project Justification			DATE: January 2005																																																													
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME T2920 Ordnance Management																																																														
B. Accomplishments/Planned Program																																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"></td> <td style="width: 10%; text-align: center;">FY 04</td> <td style="width: 10%; text-align: center;">FY 05</td> <td style="width: 10%; text-align: center;">FY 06</td> <td style="width: 10%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">4.845</td> <td></td> <td></td> <td></td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>NALC plans to use a combination of software development, training development and configuration management for the following OIS systems: Retail Ordnance Logistics Management System (ROLMS), Receipts, Storage, Stowage, and Issue (RSS&I), Demil Program Support, Ordnance Data Warehouse, and Conventional Ammunition Inventory Management System (CAIMS). NAVSEA systems will be integrated into the OIS</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"></td> <td style="width: 10%; text-align: center;">FY 04</td> <td style="width: 10%; text-align: center;">FY 05</td> <td style="width: 10%; text-align: center;">FY 06</td> <td style="width: 10%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td style="text-align: center;">4.374</td> <td></td> <td></td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>NALC plans to use a combination of software development, training development, and configuration management for the following OIS systems: Ammunition Investment Model (AIM) , Packaging, Handling, Storage & Transportation (PHS&T), Exercise Planning, Fleet Readiness, etc.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"></td> <td style="width: 10%; text-align: center;">FY 04</td> <td style="width: 10%; text-align: center;">FY 05</td> <td style="width: 10%; text-align: center;">FY 06</td> <td style="width: 10%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td></td> <td style="text-align: center;">5.930</td> <td></td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>NALC plans to use a combination of software development, training development, and configuration management for the following OIS systems: PHS&T, Joint Sentencing Toolkit, Weapons Maintenance Support, Explosive Safety, etc.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"></td> <td style="width: 10%; text-align: center;">FY 04</td> <td style="width: 10%; text-align: center;">FY 05</td> <td style="width: 10%; text-align: center;">FY 06</td> <td style="width: 10%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td></td> <td></td> <td style="text-align: center;">3.650</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; height: 40px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	4.845				RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost		4.374			RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost			5.930		RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost				3.650	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07																																																												
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RDT&E Articles Quantity																																																																

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EXHIBIT R-2a, RDT&E Project Justification		DATE: January 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME T2920 Ordnance Management
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <p>E. ACQUISITION STRATEGY: *</p> <p><u>FY 2004</u> JAN 04 - RSS&I Integration FEB 04 - Fleet Readiness DEC 03 - Ordnance Data Warehouse MAY 04 - ROLMS MAY 04 - AIM</p> <p><u>FY 2005</u> OCT 05 - PHS&T and Joint Sent Toolkit JUN 05 - Weapons Maintenance Support and JUL 05 - Explosive Safety</p> <p><u>FY 2006</u> OCT 05 - PHS&T and Joint Sentencing ToolKit NOV 05- SEP 08 - PHS&T of Ammo-DoD Logistics JUN 06 - Mobilization/Exercise Planning</p> <p><u>FY 2007</u> NOV 05-SEP 08 - PHS&T of Ammo-DoD Logistics SEP 08 - Production/Industrial Base Support SEP 08 - Fairshare (Weapon Allocation Capability)</p> <p>F. MAJOR PERFORMERS: **</p> <p>Not Applicable</p>		

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Exhibit R-3 Cost Analysis (page 1)												DATE: January 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603739N Navy Logistic Productivity		T2920 Ordnance Management									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development													0.000	
Ancillary Hardware Development													0.000	
Systems Engineering													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development				0.000				0.000				0.000	0.000	
Remarks:														
Development Support Equipment													0.000	
Software Development				3.578	10/03	3.221	10/04	4.290	10/05	2.649	10/06		13.738	
Training Development				0.287	10/03	0.139	10/04	0.316	10/05	0.195	10/06		0.937	
Integrated Logistics Support													0.000	
Configuration Management				0.246	10/03	0.179	10/04	0.238	10/05	0.147	10/06		0.810	
Technical Data													0.000	
GFE													0.000	
Subtotal Support				4.111		3.539		4.844		2.991		0.000	15.485	
Remarks:														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)													DATE: January 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603739N Navy Logistic Productivity		PROJECT NUMBER AND NAME T2920 Ordnance Management									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY's Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation				0.451	10/03	0.537	10/04	0.687	10/05	0.412	10/06		2.087	
Operational Test & Evaluation				0.200	10/03	0.268	10/04	0.357	10/05	0.221	10/06		1.046	
Tooling													0.000	
GFE													0.000	
Subtotal T&E			0.000	0.651		0.805		1.044		0.633		0.000	3.133	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support	WX	TBD		0.083	10/03	0.030	10/04	0.042	10/05	0.026	10/06		0.181	
Travel													0.000	
Labor (Research Personnel)													0.000	
Overhead													0.000	
Subtotal Management			0.000	0.083		0.030		0.042		0.026		0.000	0.181	
Remarks:														
Total Cost				4.845		4.374		5.930		3.650		0.000	18.799	
Remarks:														

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EXHIBIT R4, Schedule Profile																											DATE: January 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity												PROJECT NUMBER AND NAME T2920 Ordnance Management																		
	2004				2005				2006				2007				2008				2009				2010				2011		
Fiscal Year	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Acquisition Milestones																															
System Integration																															
System Testing																															
Initial Operating Capability (IOC)																															
Full Operating Capability (FOC)																															
Test & Evaluation Milestones																															
Development Test																															
Operational Test																															
Production Milestones																															
LRIP I FY 05																															
LRIP II FY 06																															
FRP FY 07																															
Deliveries																															

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* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4a, Schedule Detail						DATE: January 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME T2920 Ordnance Management				
Schedule Profile		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Prototype Phase									
System Design Review (SDR)									
Milestone II (MSII)									
Contract Preparation									
Software Specification Review (SSR)									
Preliminary Design Review (PDR)									
System Development/Integration		Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q-1			
Critical Design Review (CDR)									
Quality Design and Build									
Test Readiness Review (TRR)									
Developmental Testing (DT-IIA)		Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q-1			
Eng Dev Model (EDM) Radar Delivery - Lab									
Software Delivery 1XXSW									
Preproduction Readiness Review (PRR)									
EDM Radar Delivery - Flt Related									
Milestone C (MS C)									
Operational Testing (OT-IIA)									
Start Low-Rate Initial Production I (LRIP I)									
Software Delivery 2XXSW									
Developmental Testing (DT-IIB1)									
Developmental Testing (DT-IIB2)									
Start Low-Rate Initial Production II									
Operational Testing (OT-IIB)									
Developmental Testing (DT-IIC)									
Functional Configuration Audit (FCA)									
Low-Rate Initial Production I Delivery									
Technical Evaluation (TECHEVAL)									
Physical Configuration Audit									
Operational Evaluation (OT-IIC) (OPEVAL)									
Low-Rate Initail Production II Delivery									
IOC		Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q2.5			
Full Operating Capability (FOC)			Q2-Q4	Q1-Q4	Q1-Q4	Q1-Q4			
Full Rate Production (FRP) Decision									
Full Rate Production Start									
First Deployment									

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CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification						DATE: January 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME 2955 Joint Engineering Data Management Info &Control System (JEDMICS)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	3.371	2.934	2.979	2.832	2.897	3.103	3.236	3.374
RDT&E Articles Qty	Not Applicable							
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In FY85 Congress directed the Services and Defense Logistics Agency to permanently capture, manage and control engineering data in digital format so it would be available to support competitive spares re-procurement. The Joint Engineering Data Management Information & Control System (JEDMICS) program manages and controls 77,000,000 engineering images and has 34,000 authorized users responsible for over 70,000 user sessions per month. Over 2.5 million digital images are retrieved each month. New data and new users are added each month as DoD re-engineers its business processes to take advantage of digital data that is managed and controlled for corporate reuse. The JEDMICS system is deployed at 26 interoperable sites that service 600 locations worldwide. Data stored in JEDMICS is used for Logistics Support, Spares re-procurement, Weapons Systems procurement, Engineering, Maintenance, Distribution, Manufacturing, Air National Guard and Deployed Engineering Technical Services organizations. JEDMICS facilitates work process re-design since its brings the electronic drawings to the desktop, shop floor or flight line in real time eliminating walk, wait and slack time to retrieve drawings. Additionally, Administrative Lead Time, Repair Turn Around Time, ECP processing time, demilitarization time, and all cycle times dependent on engineering data have decreased with the real time availability of digital engineering data. JEDMICS also facilitates Electronic Commerce since it produces digital technical data packages that can be forwarded along with an electronic order. Funds are for Commercial Off The Shelf (COTS) test, evaluation and integration. JEDMICS development efforts are required to integrate and test COTS upgrades.</p>								

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EXHIBIT R-2a, RDT&E Project Justification			DATE: January 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME 2955 Joint Engineering Data Management Info & Control System (JEDMICS)		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.723	2.343	2.484	2.385
RDT&E Articles Quantity				
Conduct development efforts associated with COTS obsolescence of the fully deployed COTS intensive JEDMICS system. Conduct COTS requirements definition, evaluation, integration and testing of annual baseline releases. Conduct technology insertion of the JEDMICS system that is required to protect the \$21B digital data asset managed in JEDMICS.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.428	0.380	0.385	0.391
RDT&E Articles Quantity				
Conduct test and readiness reviews and functional performance tests on JEDMICS system.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.220	0.211	0.110	0.056
RDT&E Articles Quantity				
Conduct technical evaluations and configuration control reviews of JEDMICS system.				

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EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			January 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603739N Navy Logistic Productivity	2955 Joint Engineering Data Management Info & Control System (JEDMICS)		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 04	FY 05	FY 06	FY 07
Previous President's Budget:	3.450	2.962	2.954	3.037
Current BES/President's Budget	3.371	2.934	2.979	2.832
Total Adjustments	-0.079	-0.028	0.025	-0.205
Summary of Adjustments				
Congressional undistributed reductions		-0.027		
SBIR/STTR Transfer	-0.079			
Program Adjustments		-0.001	-0.030	-0.244
Economic Assumptions			0.055	0.039
Subtotal	-0.079	-0.028	0.025	-0.205
Schedule:				
Not Applicable				
Technical:				
Not Applicable				

R-1 SHOPPING LIST - Item No. 66

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: January 2005																								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME 2955 Joint Engineering Data Management Info & Control System (JEDMICS)																										
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <table border="1"> <thead> <tr> <th><u>Line Item No. & Name</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> <th><u>FY 2006</u></th> <th><u>FY 2007</u></th> <th><u>FY 2008</u></th> <th><u>FY 2009</u></th> <th><u>FY 2010</u></th> <th><u>FY 2011</u></th> <th>To <u>Complete</u></th> <th>Total <u>Cost</u></th> </tr> </thead> <tbody> <tr> <td>Not Applicable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	To <u>Complete</u>	Total <u>Cost</u>	Not Applicable										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	To <u>Complete</u>	Total <u>Cost</u>																					
Not Applicable																															
<p>E. ACQUISITION STRATEGY:</p> <p>Contracting is via General Services Administration schedules with various vendors and are for software maintenance and COTS evaluation and integration.</p>																															

R-1 SHOPPING LIST - Item No. 66

CLASSIFICATION:

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)							DATE: January 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
RDTE&E, N / BA-4			0603739N Navy Logistic Productivity			2955 Joint Engineering Data Management Info & Control System (JEDMICS)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000		
Remarks:													
Development Support	MIPR	Aviation Missile Command,		0.150	10/04	0.150	10/05	0.150	10/06	0.900	1.350		
		Redstone Arsenal, AL											
Software Development	C-FFP	Northrop Grumman Informa-	7.675	2.193	11/04	2.334	11/05	2.235	11/06	14.051	28.488	28.488	
		tion Technology, McLean, VA											
Software Development	Various	Various	0.216								0.216	0.216	
Subtotal Support			7.891	2.343		2.484		2.385		14.951	30.054		
Remarks: Funds are for development efforts associated with COTS obsolescence on the fully deployed COTS Intensive Joint Engineering Data Management Information & Control System (JEDMICS). Funds are for COTS evaluation, integration, and test and evaluation. The common baseline will be regained and obsolete COTS software and hardware will be replaced. Baseline releases will protect joint interoperability, upgrade operating systems for security patches and supportable versions, support integration to replace obsolete COTS, and upgrade the Oracle database to supportable versions.													

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: January 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603739N Navy Logistic Productivity			2955 Joint Engineering Data Management Info & Control System (JEDMICS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	2.198	0.380	Various	0.385	Various	0.391	Various	2.496	5.850	
Subtotal T&E			2.198	0.380		0.385		0.391		2.496	5.850	
Remarks: Supports testing and evaluation of baseline releases in a user environment.												
Government Engineering Support	Various	Various	0.479	0.157	10/04	0.055	10/05				0.691	
Program Management Support	WR	Various	0.144	0.015	10/04	0.015	10/05	0.016	10/06	0.099	0.289	
Travel	Various	Various	0.086	0.039	Various	0.040	Various	0.040	Various	0.259	0.464	
Subtotal Management			0.709	0.211		0.110		0.056		0.358	1.444	
Remarks: Supports requirements management at the Prime Contractor location.												
Total Cost			10.798	2.934		2.979		2.832		17.805	37.348	
Remarks:												

R-1 SHOPPING LIST - Item No. 66

EXHIBIT R4, Schedule Profile																								DATE:								
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												
RDT&E, N / BA-4								0603739N Navy Logistic Productivity												2955 Joint Engineering Data Management Info & Control System (JEDMICS)												
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones	MSIII E/C4				MSIII F/C5				MS III G/C6				MSIII H/C7				MS III I/C8				MSIII J/C9				MSIII K/C1				MSIII L/C11			
Requirements: Service IPT/ECPs			Release 3.6				Release 3.7				Release 3.8				Release 3.9				Release 3.10				Release 3.11				Release 3.12				Release 3.13	
Contract Award	▲				▲				△				△				△				△				△				△			
Software and Hardware Evaluation / Integration	Release 3.5				Release 3.6				Release 3.7				Release 3.8				Release 3.9				Release 3.10				Release 3.11				Release 3.12			
Test & Evaluation Milestones																																
Risk Assessment			Release 3.5				Release 3.6				Release 3.7				Release 3.8				Release 3.9				Release 3.10				Release 3.11				Release 3.12	
Developmental/Functional Testing			Release 3.5				Release 3.6				Release 3.7				Release 3.8				Release 3.9				Release 3.10				Release 3.11				Release 3.12	
Alpha/Beta Testing	Release 3.4				Release 3.5				Release 3.6				Release 3.7				Release 3.8				Release 3.9				Release 3.10				Release 3.11			
Deliveries: Engineering Change Package	Release 3.4				Release 3.5				Release 3.6				Release 3.7				Release 3.8				Release 3.9				Release 3.10				Release 3.11			

R-1 SHOPPING LIST - Item No. 66

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: January 2005		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&BA-4	0603739N Navy Logistic Productivity				2955 JEDMICS			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Alpha/Beta Testing Release 3.4	1Q							
Engineering Change Package Release 3.4	1Q							
Milestone IIIE or C4 (MSIIIE/C4) Release 3.4	1Q							
Contract Award	1Q							
Software Hardware Evaluation/Integration Release 3.5	1Q-3Q							
Risk Assessment Release 3.5	3Q							
Developmental/Functional Testing Release 3.5	4Q							
Service IPT/ECPs Release 3.6	4Q							
Alpha/Beta Testing Release 3.5	4Q	1Q						
Engineering Change Package Release 3.5		1Q						
Milestone IIIF or C5 (MSIIIF/C5) Release 3.5		1Q						
Contract Award		1Q						
Software Hardware Evaluation/Integration Release 3.6		1Q-3Q						
Risk Assessment Release 3.6		3Q						
Developmental/Functional Testing Release 3.6		4Q						
Service IPT/ECPs Release 3.7		4Q						
Alpha/Beta Testing Release 3.6		4Q	1Q					
Engineering Change Package Release 3.6			1Q					
Milestone IIIG or C6 (MSIIIG/C6) Release 3.6			1Q					
Contract Award			1Q					
Software Hardware Evaluation/Integration Release 3.7			1Q-3Q					
Risk Assessment Release 3.7			3Q					
Developmental/Functional Testing Release 3.7			4Q					
Service IPT/ECPs Release 3.8			4Q					
Alpha/Beta Testing Release 3.7			4Q	1Q				
Engineering Change Package Release 3.7				1Q				
Milestone IIH or C7 (MSIIH/C7) Release 3.7				1Q				
Contract Award				1Q				
Software Hardware Evaluation/Integration Release 3.8				1Q-3Q				
Risk Assessment Release 3.8				3Q				
Developmental/Functional Testing Release 3.8				4Q				
Service IPT/ECPs Release 3.9				4Q				
Alpha/Beta Testing Release 3.8				4Q	1Q			
Engineering Change Package Release 3.8					1Q			
Milestone IIH or C8 (MSIIH/C8) Release 3.8					1Q			

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: January 2005		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&BA-4	0603739N Navy Logistic Productivity				2955 JEDMICS			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Contract Award					1Q			
Software Hardware Evaluation/Integration Release 3.9					1Q-3Q			
Risk Assessment Release 3.9					3Q			
Developmental/Functional Testing Release 3.9					4Q			
Service IPT/ECPs Release 3.10					4Q			
Alpha/Beta Testing Release 3.9					4Q	1Q		
Engineering Change Package Release 3.9						1Q		
Milestone IIIJ or C9 (MSIIIJ/C9) Release 3.9						1Q		
Contract Award						1Q		
Software Hardware Evaluation/Integration Release 3.10						1Q-3Q		
Risk Assessment Release 3.10						3Q		
Developmental/Functional Testing Release 3.10						4Q		
Service IPT/ECPs Release 3.11						4Q		
Alpha/Beta Testing Release 3.10						4Q	1Q	
Engineering Change Package Release 3.10							1Q	
Milestone IIIK or C10 (MSIIIK/C10) Release 3.10							1Q	
Contract Award							1Q	
Software Hardware Evaluation/Integration Release 3.11							1Q-3Q	
Risk Assessment Release 3.11							3Q	
Developmental/Functional Testing Release 3.11							4Q	
Service IPT/ECPs Release 3.12							4Q	
Alpha/Beta Testing Release 3.11							4Q	1Q
Engineering Change Package Release 3.11								1Q
Milestone IIIL or C11 (MSIIIL/C11) Release 3.11								1Q
Contract Award								1Q
Software Hardware Evaluation/Integration Release 3.12								1Q-3Q
Risk Assessment Release 3.12								3Q
Developmental/Functional Testing Release 3.12								4Q
Service IPT/ECPs Release 3.13								4Q
Alpha/Beta Testing Release 3.12								4Q

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EXHIBIT R-2a, RDT&E Project Justification						DATE: January 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME 9047 JEDMICS Enhancements			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.402	1.981						
RDT&E Articles Qty	Not Applicable							
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In FY85 Congress directed the Services and Defense Logistics Agency to permanently capture, manage and control engineering data in digital format so it would be available to support competitive spares re-procurement. The Joint Engineering Data Management Information & Control System (JEDMICS) program manages and controls 77,000,000 engineering images and has 34,000 authorized users responsible for over 70,000 user sessions per month. Over 2.5 million digital images are retrieved each month. New data and new users are added each month as DoD re-engineers its business processes to take advantage of digital data that is managed and controlled for corporate reuse. The JEDMICS system is deployed at 26 interoperable sites that service 600 locations worldwide. Data stored in JEDMICS is used for Logistics Support, Spares re-procurement, Weapons Systems procurement, Engineering, Maintenance, Distribution, Manufacturing, Air National Guard and Deployed Engineering Technical Services organizations. JEDMICS facilitates work process re-design since its brings the electronic drawings to the desktop, shop floor or flight line in real time eliminating walk, wait and slack time to retrieve drawings. Additionally, Administrative Lead Time, Repair Turn Around Time, ECP processing time, demilitarization time, and all cycle times dependent on engineering data have decreased with the real time availability of digital engineering data. JEDMICS also facilitates Electronic Commerce since it produces digital technical data packages that can be forwarded along with an electronic order. Funds are for Commercial Off The Shelf (COTS) test, evaluation and integration. JEDMICS development efforts are required to integrate and test COTS upgrades.</p>								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: January 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity	PROJECT NUMBER AND NAME 9047 JEDMICS Enhancements		
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.402	1.981		
RDT&E Articles Quantity				
Complied with Congressional direction for Technical Data Management Enhancements.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE:	
				January 2005	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RDT&E, N / BA-4		0603739N Navy Logistic Productivity		9047 JEDMICS Enhancements	
C. PROGRAM CHANGE SUMMARY:					
Funding:		FY 04	FY 05	FY 06	FY 07
Previous President's Budget:		2.472	0.000		
Current BES/President's Budget		2.402	1.981		
Total Adjustments		-0.070	1.981	0.000	0.000
Summary of Adjustments					
Congressional undistributed reductions			-0.019		
SBIR/STTR Transfer		-0.068			
Economic Assumptions		-0.002			
Congressional increases			2.000		
Subtotal		-0.070	1.981	0.000	0.000
Schedule:					
Not Applicable					
Technical:					
Not Applicable					

R-1 SHOPPING LIST - Item No. 66

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: January 2005																								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603739N Navy Logistic Productivity			PROJECT NUMBER AND NAME 9047 JEDMICS Enhancements																										
<p>D. OTHER PROGRAM FUNDING SUMMARY:</p> <table border="1"> <thead> <tr> <th><u>Line Item No. & Name</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> <th><u>FY 2006</u></th> <th><u>FY 2007</u></th> <th><u>FY 2008</u></th> <th><u>FY 2009</u></th> <th><u>FY 2010</u></th> <th><u>FY 2011</u></th> <th>To <u>Complete</u></th> <th>Total <u>Cost</u></th> </tr> </thead> <tbody> <tr> <td>Not Applicable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	To <u>Complete</u>	Total <u>Cost</u>	Not Applicable										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	To <u>Complete</u>	Total <u>Cost</u>																					
Not Applicable																															
<p>E. ACQUISITION STRATEGY:</p> <p>Contracting is via General Services Administration schedules with various vendors and are for software maintenance and COTS evaluation and integration. Performance base reviews are conducted quarterly by the PMO.</p>																															

R-1 SHOPPING LIST - Item No. 66

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603755N/SHIP SELF DEFENSE			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	13.451	9.402	9.592	10.934	11.153	11.313	11.601	11.827
2133/QRCC/RAWG	4.256	3.584	3.542	3.526	3.590	3.607	3.732	3.795
2184 Force AAW Coord. Tech. (FACT)	9.195	5.818	6.050	7.408	7.563	7.706	7.869	8.032
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:								
<p>This program incorporates efforts dedicated to the enhancement of ship self defense against Anti-Air Warfare (AAW) threats. Its primary focus is on the development of technologies, systems, and procedures necessary to defeat the evolving Anti-Ship Cruise Missile (ASCM) threat. These projects focus on ship defense improvements through the development of advanced concepts and capabilities that will enhance both defense in depth of ships in a force and self defense of individual ships in a littoral war-fighting environment.</p> <p>Quick Reaction Combat Capability (QRCC), Project 2133, provides advanced concepts and technology developments for the multi-sensor integration of ship detection equipment, integration and coordination of ship self defense weapons, and coordination of hardkill and softkill assets to improve individual ship self defense capabilities against the ASCM threat. The Requirements and Analysis Working Group (RAWG) provides independent analysis for a variety of combat system trade-offs, ship class performance studies, and force protection strategic plan development.</p> <p>Force Anti-Air Warfare Coordination Technology (FACT), Project 2184, demonstrates AAW concepts and capabilities that will enhance the AAW warfighting ability of ships and aircraft and enable the coupling of the Force into a single, distributed AAW weapon system through more effective use of tactical data, and force sensors and weapons.</p>								

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE				PROJECT NUMBER AND NAME 2133/Quick Reaction Combat Capability/Req and Analysis W/G			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	4.256	3.584	3.542	3.526	3.590	3.607	3.732	3.795
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Quick Reaction Combat Capability (QRCC) provides advanced concepts and technology developments for the multi-sensor integration of ship detection equipment, integration and coordination of ship self defense weapons, and coordination of hardkill and softkill assets to improve individual ship self defense capabilities against the Anti-Ship Cruise Missile (ASCM) threat. The funding for the Self Defense Test Ship is for the dry-docking and overhaul of the Self Defense Test Ship to extend the service life for another 4 years. The Requirements and Analysis Working Group (RAWG) provides independent analysis for a variety of combat system trade-offs, ship class performance studies, and force protection strategic plan development.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 2 of 14)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE	PROJECT NUMBER AND NAME 2133/Quick Reaction Combat Capability/Requirements and Analysis Working Grp																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">4.256</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	4.256	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	4.256	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">3.584</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	3.584	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	3.584	0.000	0.000															
RDT&E Articles Quantity																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	3.542	0.000															
RDT&E Articles Quantity																			
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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE	PROJECT NUMBER AND NAME 2133/Quick Reaction Combat Capability/Requirements and Analysis Working Grp																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 25%;"></td><td style="width: 12.5%; text-align: center;">FY 04</td><td style="width: 12.5%; text-align: center;">FY 05</td><td style="width: 12.5%; text-align: center;">FY 06</td><td style="width: 12.5%; text-align: center;">FY 07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">3.526</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	3.526	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	3.526															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;">The Requirements and Analysis Working Group (RAWG) will continue leadership and management of the Common ASCM Threat Characterization process for PEO IWS.</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 25%;"></td><td style="width: 12.5%; text-align: center;">FY 04</td><td style="width: 12.5%; text-align: center;">FY 05</td><td style="width: 12.5%; text-align: center;">FY 06</td><td style="width: 12.5%; text-align: center;">FY 07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.70

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EXHIBIT R-2, RDT&E Budget Item Justification			DATE: FEBRUARY 2005																																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE	PROJECT NUMBER AND NAME 2133 Quick Reaction Combat Capability/Requirements and Analysis Working Group																																																				
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: right;">FY 2004</th> <th style="text-align: right;">FY 2005</th> <th style="text-align: right;">FY 2006</th> <th style="text-align: right;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget: (FY 05 Pres Baseline Controls)</td> <td style="text-align: right;">4.315</td> <td style="text-align: right;">3.619</td> <td style="text-align: right;">3.580</td> <td style="text-align: right;">3.545</td> </tr> <tr> <td>Current BES/President's Budget: (FY06/07 Pres Controls)</td> <td style="text-align: right;">4.256</td> <td style="text-align: right;">3.584</td> <td style="text-align: right;">3.542</td> <td style="text-align: right;">3.526</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.059</td> <td style="text-align: right; border-top: 1px solid black;">-0.035</td> <td style="text-align: right; border-top: 1px solid black;">-0.038</td> <td style="text-align: right; border-top: 1px solid black;">-0.019</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td>Programmatic/Other Adjustments</td> <td></td> <td></td> <td style="text-align: right;">-0.038</td> <td style="text-align: right;">-0.019</td> </tr> <tr> <td>Undistributed Congressional Reductions</td> <td style="text-align: right;">-0.048</td> <td style="text-align: right;">-0.035</td> <td></td> <td></td> </tr> <tr> <td>Cancelled Account</td> <td style="text-align: right;">-0.011</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.059</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.035</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.038</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.019</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule: N/A</p> <p style="margin-top: 20px;">Technical: N/A</p>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					Previous President's Budget: (FY 05 Pres Baseline Controls)	4.315	3.619	3.580	3.545	Current BES/President's Budget: (FY06/07 Pres Controls)	4.256	3.584	3.542	3.526	Total Adjustments	-0.059	-0.035	-0.038	-0.019	Summary of Adjustments					Programmatic/Other Adjustments			-0.038	-0.019	Undistributed Congressional Reductions	-0.048	-0.035			Cancelled Account	-0.011				Subtotal	-0.059	-0.035	-0.038	-0.019
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R-1 SHOPPING LIST - Item No. 70

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE	PROJECT NUMBER AND NAME 2133 Quick Reaction Combat Capability/Requirements and Analysis Working Group
<p>D. OTHER PROGRAM FUNDING SUMMARY: N/A</p> <p>E. ACQUISITION STRATEGY: N/A</p> <p>F. MAJOR PERFORMERS: Dahlgren/ NSWCDD - Responsible for overall combat systems performance analysis for Navy ship classes.</p>		

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EXHIBIT R-2, RDT&E Budget Item Justification										DATE: FEBRUARY 2005				
Exhibit R-3 Cost Analysis (page 1)			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
APPROPRIATION/BUDGET ACTIVITY			0603755N/SHIP SELF DEFENSE			2133 Quick Reaction Combat Capability/Requirements and Analysis Working Group								
RDT&E, N / BA-4														
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development													0.000	
Ancillary Hardware Development													0.000	
Component Development													0.000	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	WX	Dahlgren, NSWC DD	6.875	4.256	10/03	3.584	10/04	3.542	10/05	3.526	10/06	Continuing	Continuing	
Training Development													0.000	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			6.875	4.256		3.584		3.542		3.526		Continuing	Continuing	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Training Development													0.000	
Integrated Logistics Support													0.000	
Configuration Management													0.000	
Technical Data													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

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EXHIBIT R-2, RDT&E Budget Item Justification										DATE: FEBRUARY 2005				
Exhibit R-3 Cost Analysis (page 2)				PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
APPROPRIATION/BUDGET ACTIVITY				0603755N/SHIP SELF DEFENSE				2133 Quick Reaction Combat Capability/Requirements and Analysis Working Group						
RDT&E, N / BA-4														
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Dahlgren NSWC DD	9.725										9.725	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			9.725	0.000		0.000		0.000		0.000		0.000	9.725	
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support													0.000	
Travel													0.000	
Labor (Research Personnel)													0.000	
SBIR Assessment													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														
Total Cost			16.600	4.256		3.584		3.542		3.526		Continuing	31.508	
Remarks:														

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE				PROJECT NUMBER AND NAME 2184 Force AAW Coordination Technology			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	9.195	5.818	6.050	7.408	7.563	7.706	7.869	8.032
RDT&E Articles Qty		n/a	n/a	n/a	n/a	n/a	n/a	n/a

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Force Anti-Air Warfare Technology (FACT) Program is an advanced development effort designed to demonstrate Force Anti-Air Warfare (AAW) concepts and capabilities that will significantly improve our Force defense in depth, including both local area and self defense capabilities against current and future AAW threats. FACT improvements are designed to enhance the AAW warfighting ability of ships and aircraft and to enable coupling of the Force into a single, distributed AAW weapon system and towards more effective use of tactical data and the cooperative use of all the force sensors and weapons. These capabilities will provide the ship defense flexibility needed to meet the threat brought about by increasing numbers of highly sophisticated weapons held by potentially hostile Third World countries. FACT defines requirements and develops prototype systems or modifications to existing systems to test new concepts for the coordination of Force AAW operations. FACT is a model Sea Enterprise effort that consistently delivers advanced war-fighting capability that addresses current Fleet shortfalls and needs quickly and cost effectively. Some examples of prototype systems now in production are AN/SPS-48C Detection Data Converter, AN/SPS-48E Environmental Control Feature, Shipboard Gridlock System Automatic Correlation (SGS/AC) and Dial-a-Track Quality (Link-11 Quality Selection). Other FACT developments nearing production stages are the Automatic Identification System (Auto-ID) and the Multi-Frequency Link-11 capability; Dual Net Multi-Frequency Link-11 (DNMFL); Force Threat Evaluation Weapons Assignment (FTEWA); and the prototype Area Air Defense Commander (AADC) capability. Short and long term objectives will be phased in to produce higher degrees of ship defense and battle coordination and effectiveness.

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EXHIBIT R-2, RDT&E Budget Item Justification			DATE: FEBRUARY 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE	PROJECT NUMBER AND NAME K2184 Force AAW Coordination Technology																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 30%;"></td><td style="width: 15%;">FY04</td><td style="width: 15%;">FY05</td><td style="width: 15%;">FY06</td><td style="width: 15%;">FY07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>8.586</td><td>5.333</td><td>5.582</td><td>6.940</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px; min-height: 60px;">On going development of Joint Targeting Attack & Assessment Capability (JTAAC)/demonstrations at sea and ashore, and support Navy's transition of JTAAC to a production program.</div>						FY04	FY05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	8.586	5.333	5.582	6.940	RDT&E Articles Quantity				
	FY04	FY05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	8.586	5.333	5.582	6.940															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 30%;"></td><td style="width: 15%;">FY04</td><td style="width: 15%;">FY05</td><td style="width: 15%;">FY06</td><td style="width: 15%;">FY07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.454</td><td>0.335</td><td>0.318</td><td>0.318</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px; min-height: 60px;">Support land based and at sea experiments of Advanced Command and Control Systems, conduct analysis to evaluate air defense concepts and capabilities including Multi-TADIL operations and air defense operations.</div>						FY04	FY05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	0.454	0.335	0.318	0.318	RDT&E Articles Quantity				
	FY04	FY05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	0.454	0.335	0.318	0.318															
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	FY04	FY05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	0.150	0.150	0.150	0.150															
RDT&E Articles Quantity																			

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE	PROJECT NUMBER AND NAME K2184 Force AAW Coordination Technology		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
Previous President's Budget: (FY 05 Pres Controls)	5.418	5.874	6.015	7.329
Current President's Budget: (FY 06 Pres Controls)	9.195	5.818	6.050	7.408
Total Adjustments	3.777	-0.056	0.035	0.079
Summary of Adjustments				
Undistributed Congressional Reductions	-0.060	-0.056		
FY04 SBIR (9 Apr 04)	-0.149			
Execution Realignment	4.000			
Cancelled Accounts Liabilities	-0.014			
Programmatic/Other Adjustments			0.035	0.079
Subtotal	3.777	-0.056	0.035	0.079

Schedule:

Not Applicable.

Technical:

Not Applicable.

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603755N/SHIP SELF DEFENSE	PROJECT NUMBER AND NAME K2184 Force AAW Coordination Technology
<p>D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable</p> <p>E. ACQUISITION STRATEGY: Not Applicable</p> <p>F. MAJOR PERFORMERS: APL/Laurel, MD</p>		

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EXHIBIT R-2, RDT&E Budget Item Justification										DATE: FEBRUARY 2005				
Exhibit R-3 Cost Analysis (page 1)			APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME					
RDT&E, N / BA-4			0603755N/SHIP SELF DEFENSE			K2184 Force AAW Coordination Technology								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPFF	APL/Laurel, MD	80.678	8.480	11/03	5.333	11/04	5.582	11/05	6.940	11/06	CONT	CONT	
Systems Engineering		SPAWAR, S.D.	0.150										0.150	
Systems Engineering		SPAWAR NORFOLK	0.417										0.417	
Systems Engineering		PUGET SOUND BOSTON	0.029										0.029	
Systems Engineering	GSA	GRCI	0.204										0.204	
Miscellaneous		Unknown	0.187										0.187	
Pontoon Barrier		Unknown	0.961										0.961	
Licenses													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal Product Development			82.626	8.480		5.333		5.582		6.940		CONT	CONT	
Remarks:														
Development Support													0.000	
Software Development													0.000	
Integrated Logistics Support		NSWC/PHD	0.175										0.175	
Integrated Logistics Support		NSLC Mech, PA	0.005										0.005	
Integrated Logistics Support	GSA	AMERIND	0.111										0.111	
Technical Data		NSWC/DD/ Dahlgren, VA	0.150										0.150	
GFE													0.000	
Award Fees													0.000	
Subtotal Support			0.441	0.000		0.000		0.000		0.000		0.000	0.441	
Remarks:														

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EXHIBIT R-2, RDT&E Budget Item Justification										DATE: FEBRUARY 2005				
Exhibit R-3 Cost Analysis (page 2)			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
APPROPRIATION/BUDGET ACTIVITY			0603755N/SHIP SELF DEFENSE			K2184 Force AAW Coordination Technology								
RDT&E, N / BA-4														
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													0.000	
Operational Test & Evaluation	CPFF	APL/Laurel, MD	2.175	0.454	11/03	0.335	11/04	0.318	11/05	0.318	11/06	CONT	CONT	
Live Fire Test & Evaluation													0.000	
Test Assets													0.000	
Tooling													0.000	
GFE													0.000	
Award Fees													0.000	
Subtotal T&E			2.175	0.454		0.335		0.318		0.318		CONT	CONT	
Remarks:														
Contractor Engineering Support	CPAF	RGE, SPRINGFIELD, VA	0.006										0.006	
Contractor Engineering Support	CPFF	SPA,FAIRFAX, VA	0.100										0.100	
Contractor Engineering Support	CPFF	LOGICON, FALLS CHUR, VA	0.060											
Contractor Engineering Support	GSA	STRATEGIC INSIGHT, VA	0.189											
Program Management Support	GSA	DSR, FAIRFAX, VA	0.590										0.590	
Program Management Support	GSA	DELTA ARLINGTON VA	0.000	0.261	11/03	0.150	11/04	0.150	11/05	0.150	11/06	CONT	CONT	
Travel													0.000	
Labor (Research Personnel)													0.000	
Subtotal Management			0.945	0.261		0.150		0.150		0.150		CONT	CONT	
Remarks:														
Total Cost			86.187	9.195		5.818		6.050		7.408		CONT	CONT	
Remarks:														

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2

DATE: Feb 2005

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N
PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT

COST: (Dollars in Thousands)

Project Number & Title	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total PE	9,333	10,053	10,335	10,563	10,949	11,101	11,359	11,620
R2293 NATO COOPERATIVE R & D	9,333	10,053	10,335	10,563	10,949	11,101	11,359	11,620

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In accordance with Title 10 U.S. Code Section 2350a, this Program Element provides funding for research and development projects with approved Allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Under Secretary of Defense, Acquisition and Technology (USD,A&T) must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate Summary Statement of Intent (SSOI) which also states why the project serves to increase the conventional defense capabilities of the U.S.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2

DATE: Feb 2005

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0603790N
PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT

PROGRAM CHANGE SUMMARY:

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
FY 2005 President's Budget Submission	11,338	10,151	10,345	10,533
Cong Rescissions/Adjustments/Undist. Reductions	0	-96	0	0
Execution Adjustments	1,523	0	0	0
Non-Pay Inflation Adjustments	0	0	3	4
Program Adjustments	0	-2	-10	-9
Rate Adjustments	0	0	-3	35
Technical Adjustments	-3,528	0	0	0
FY 2006/2007 President's Budget Submission	9,333	10,053	10,335	10,563

PROGRAM CHANGE SUMMARY EXPLANATION:

Technical: Not applicable.

Schedule: Not applicable.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0603790N

PROJECT NUMBER: R2293

PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT

PROJECT TITLE: NATO COOPERATIVE R & D

COST: (Dollars in Thousands)

Project Number & Title	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
R2293 NATO COOPERATIVE R & D	9,333	10,053	10,335	10,563	10,949	11,101	11,359	11,620

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: In accordance with Title 10 U.S. Code Section 2350a, this project provides funding for research and development projects with approved Allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Under Secretary of Defense, Acquisition and Technology (USD,A&T) must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate SSOI which also states why the project serves to increase the conventional defense capabilities of the U.S.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2004	FY 2005	FY 2006	FY 2007
COOPERATIVE PROJECTS	9,333	10,053	10,335	10,563

FY 2004 Accomplishments:

- Supported the Advance Radar Technology Integrated System Testbed cooperative project between the U.S. and the United Kingdom.
- Supported the Common Operational Picture Interoperability for Coalition Warfare cooperative project between the U.S. and France.
- Supported the Multilateral Memorandum of Understanding (MOU) for Interoperable Networks for Secure Communication.
- Supported the Mechanisms and Prediction of Surface Ship Radiated Flow-Noise cooperative project between the U.S. and the Netherlands.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0603790N

PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT

PROJECT NUMBER: R2293

PROJECT TITLE: NATO COOPERATIVE R & D

- Supported the Submarine Sonar Advanced Processing Build - Acoustic Rapid Commercial Off The Shelf (COTS) Insertion (APB-ARCI) cooperative project between the U.S. and the United Kingdom.
- Supported the Unmanned Undersea Vehicles (UUV), Intelligence, Surveillance and Reconnaissance (ISR) and Anti-Submarine Warfare (ASW) cooperative program between the U.S. and the United Kingdom.
- Supported the Software Radio cooperative project between the U.S. and Japan.
- Supported the Advanced Hull Materials and Structures Technology (AHM&ST) cooperative project between the U.S. and Japan.
- Supported the Multilateral cooperative project concerning Coalition Maritime Missile Defense Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) Architecture Definition.
- Supported the Dynamic Failure Prediction of Joints in Composite Sandwich Structures cooperative project between the U.S. and the Netherlands.
- Supported the Maritime Missile Defense Modeling and Simulation cooperative project between the U.S and the United Kingdom.
- Supported the Multilateral MOU for Standard Missile.
- Supported the U.S. and United Kingdom Naval Fires project under the Naval Combat Systems Interoperability Technology cooperative project.
- Supported the Enhanced Undersea Weapons Effectiveness and Ship Survivability through the Application of Validated Computer Codes cooperative project between the U.S. and Germany.

FY 2005 Plans:

- Continue to support the Advance Radar Technology Integrated System Testbed cooperative project between the U.S. and the United Kingdom.
- Continue to support the Multilateral MOU for Interoperable Networks for Secure Communication.
- Continue to support the Submarine Sonar APB-ARCI cooperative project between the U.S. and the United Kingdom.
- Continue to support the UUV, ISR and ASW cooperative program between the U.S. and the United Kingdom.
- Continue to support the Software Radio cooperative project between the U.S. and Japan.
- Continue to support the AHM&ST cooperative project between the U.S. and Japan.
- Continue to support the Multilateral cooperative project concerning Coalition Maritime Missile Defense BMC4I Architecture Definition.
- Continue to support the Maritime Missile Defense Modeling and Simulation cooperative project between the U.S and the United Kingdom.
- Continue to support the Multilateral MOU for Standard Missile.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0603790N

PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT

PROJECT NUMBER: R2293

PROJECT TITLE: NATO COOPERATIVE R & D

- Continue to support the Enhanced Undersea Weapons Effectiveness and Ship Survivability through the Application of Validated Computer Codes cooperative project between the U.S. and Germany.
- Support the Six (6) Degrees of Freedom Ship Roll cooperative project between the U.S. and Italy.
- Support the cooperative project concerning Australia United States Phased Array Radar (AUSPAR) between the U.S. and Australia.
- Support the cooperative project between the U.S. and Singapore regarding Multi-Statics Sonar.
- Support the cooperative project between the U.S. and U.K. regarding Next Generation Countermeasures.
- Support the Interoperability Study between the U.S. and the U.K.
- Continue to provide support for the identification and development of MOUs with one or more approved major Allies for the purpose of conducting cooperative research and development projects on defense equipment and munitions. These international agreements (MOUs) are approved by USD,A&T and are submitted in separate SSOIs.

FY 2006 Plans:

- Continue to support the Advance Radar Technology Integrated System Testbed cooperative project between the U.S. and the United Kingdom.
- Continue to support the Multilateral MOU for Interoperable Networks for Secure Communication.
- Continue to support the Submarine Sonar APB-ARCI cooperative project between the U.S. and the United Kingdom.
- Continue to support the UUV, ISR and ASW cooperative program between the U.S. and the United Kingdom.
- Continue to support the AHM&ST cooperative project between the U.S. and Japan.
- Continue to support the Multilateral cooperative project concerning Coalition Maritime Missile Defense BMC4I Architecture Definition.
- Continue to support the Enhanced Undersea Weapons Effectiveness and Ship Survivability through the Application of Validated Computer Codes cooperative project between the U.S. and Germany.
- Support the cooperative project concerning Australia United States Phased Array Radar (AUSPAR) between the U.S. and Australia.
- Support the cooperative project between the U.S. and Singapore regarding Multi-Statics Sonar.
- Support the cooperative project between the U.S. and U.K. regarding Next Generation Countermeasures.
- Support the cooperative project between the U.S. and U.K. regarding Fiber Laser Sensors.
- Support the cooperative project between the U.S. and Japan regarding S-Band Radar.
- Support the cooperative project between the U.S. and Japan regarding Open Architecture.
- Support the cooperative project between the U.S. and Australia regarding the Australia/U.S. Distributed Engineering Plan (AUSDEP).

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0603790N

PROGRAM ELEMENT TITLE: NATO RESEARCH AND DEVELOPMENT

PROJECT NUMBER: R2293

PROJECT TITLE: NATO COOPERATIVE R & D

- Continue to provide support for the identification and development of MOUs with one or more approved major Allies for the purpose of conducting cooperative research and development projects on defense equipment and munitions. These international agreements (MOUs) are approved by USD,A&T and are summarized in separate SSOIs.

FY 2007 Plans:

- Continue to provide support for the identification and development of MOUs with one or more approved major Allies for the purpose of conducting cooperative research and development projects on defense equipment and munitions. These international agreements (MOUs) are approved by USD,A&T and are summarized in separate SSOIs.

C. OTHER PROGRAM FUNDING SUMMARY:

NAVY RELATED RDT&E:

PE 0605853N (Management, Technical and International Support)

NON-NAVY RELATED RDT&E:

PE 0605130D (Foreign Comparative Testing)

D. ACQUISITION STRATEGY:

Not applicable.

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FY 2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
Exhibit R-3

DATE: Feb 2005

BA: 04 PROGRAM ELEMENT: 0603790N
PROJECT ELEMENT TITLE: NATO Research and Development

Project Number: R2293
Project Title: NATO
Cooperative R&D

A. PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
a. Cooperative Research and Development	9,333	10,053	10,335	10,563

B. BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION:

PERFORMING ORGANIZATIONS

Contractor/ Government Performing <u>Activity</u>	Contract Method/ Fund Type <u>Vehicle</u>	Award/ Oblig <u>Date</u>	Perform Activity <u>EAC</u>	Project Office <u>EAC</u>	<u>FY 2004</u> <u>Budget</u>	<u>FY 2005</u> <u>Budget</u>	<u>FY 2006</u> <u>Budget</u>	<u>FY 2007</u> <u>Budget</u>	<u>To</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
Product Development										
NAVSEA	PD				2,162	2,700	2,070		CONT.	CONT.
NSWC	WX				850	3,250	1,600		CONT.	CONT.
NUWC	WX				0	0	0		CONT.	CONT.
SPAWAR	PD				1,600	250	0		CONT.	CONT.
PEO(LMW)	PD				2,500	2,998	500			
PEO(IWS)	PD				0	0	0			
Miscellaneous					2,221	855	6,165	10,563	CONT.	CONT.

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FY 2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN
Exhibit R-3

DATE: Feb 2005

BA: 04 PROGRAM ELEMENT: 0603790N
PROJECT ELEMENT TITLE: NATO Research and Development

Project Number: R2293
Project Title: NATO
Cooperative R&D

Contractor/ Government Performing <u>Activity</u> Support and Management	Contract Method/ Fund Type <u>Vehicle</u>	Award/ Oblig <u>Date</u>	Perform Activity <u>EAC</u>	Project Office <u>EAC</u>	FY 2004 <u>Budget</u>	FY 2005 <u>Budget</u>	FY 2006 <u>Budget</u>	FY 2007 <u>Budget</u>	To <u>Complete</u>	Total <u>Program</u>
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Contractor/ Government Performing <u>Activity</u> Test and Evaluation	Contract Method/ Fund Type <u>Vehicle</u>	Award/ Oblig <u>Date</u>	Perform Activity <u>EAC</u>	Project Office <u>EAC</u>	FY 2004 <u>Budget</u>	FY 2005 <u>Budget</u>	FY 2006 <u>Budget</u>	FY 2007 <u>Budget</u>	To <u>Complete</u>	Total <u>Program</u>
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GOVERNMENT FURNISHED PROPERTY: Not applicable.

	FY 2004 <u>Budget</u>	FY 2005 <u>Budget</u>	FY 2006 <u>Budget</u>	FY 2007 <u>Budget</u>	To <u>Complete</u>	Total <u>Program</u>
Subtotal Product Development	9,333	10,053	10,335	10,563	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	CONT.	CONT.
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	9,333	10,053	10,335	10,563	CONT.	CONT.

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification					DATE:	February 2005		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-4			R-1 ITEM NOMENCLATURE 0603795N/Land Attack Technology					
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	117.110	100.305	14.195	20.298	31.806	43.007	31.038	20.208
2156/Naval Surface Fire Support (NSFS)	41.236	31.239	10.849	17.912	30.323	41.250	29.241	18.372
9051/Advance Medium Caliber Gun Demonstrator (AMCGD) ⁽¹⁾⁽²⁾	3.295	3.367	0.000	0.000	0.000	0.000	0.000	0.000
9052/Autonomous Naval Support Round (ANSR) ⁽¹⁾	16.355	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2325/Naval Fires Control System (NFCS)	5.984	6.075	3.346	2.386	1.483	1.757	1.797	1.836
2927/2871/Naval Fires Network (NFN) ⁽¹⁾	15.217	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9359/Affordable Weapon System (AWS) ⁽¹⁾	27.045	48.433	0.000	0.000	0.000	0.000	0.000	0.000
9360/Hardened Precision Sensors For Missiles & Projectiles (HPSFMP) ⁽¹⁾	2.766	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9361/Local Situational Assessment Segment Adjunct To TES-N(LSASATT) ⁽¹⁾	2.401	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9362/Millennium Gun System (MGS) ⁽¹⁾	1.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9363/TES-N And P-3 Ground Station (TP3GS) ⁽¹⁾	1.635	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9542/ 57mm Gun Qualification and Test ⁽³⁾	0.000	11.191	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles & Cost (see attached projects)								
⁽¹⁾ Funding includes the following FY04 Congressional Adds: NFN Project 2871 - \$.970M, ANSR Project 9052 - \$16.355M, AMCGD Project 9051 - \$3.295M, AWS Project 9359 - \$27.045M, HPSFMP Project 9360 - \$2.766M, LSASATT Project 9361 - \$2.401M, MGS Project 9362 - \$1.176M, TP3GS - Project 9363 - \$1.635M								
⁽²⁾ Funding includes the following FY05 Congressional Adds: 57mm Gun Qualification and Test - \$11.191M - Project 9542, Advanced XLR Medium Gun Demo Project 9051 - \$3.367M								
<p>A. (U) Mission Description and Budget Item Justification: The Land Attack Technology program element supports the Naval Surface Fire Support (NSFS) mission. To meet the United States Marine Corp (USMC) requirements for NSFS, the Navy is developing a variety of weapons systems including both gun and missile systems that can provide the required range, lethality, accuracy, and responsiveness. The NSFS program (Project 2156) develops gun systems including the 5"/62 gun (a modification of the existing 5"/54 gun); a 5" Extended Range Guided Munition (ERGM) with a coupled internal Global Positioning System (GPS) and Inertial Navigation System (INS) capable of delivering a payload to a range in excess of current capability; associated propelling charge improvements; and the demonstration of the Ballestic Trajectory Extended Range Munition II. The program is currently being restructured to provide a robust NSFS capability within existing resources. The Autonomous Naval Support Round (ANSR) (Project 9052) is a rolling airframe platform used to demonstrate/advance gun-launched guided projectile technologies. The Advanced Medium Caliber Gun System (AMCGD) (Project 9051) is a demonstration to investigate an advanced gun design encompassing modularity, scalability, compactness, and long range. The Naval Fires Network (NFN) (Project 2927) is a system which will automate, coordinate, and correlate, in a real time fashion, the processing of multiple tactical data streams from various surveillance/intelligence sources to provide time-critical fire control solutions for advanced weapon systems and sensors. The automation/correlation provided by NFN will provide the Navy an ability to quickly target and re-target precision weapons, greatly enhancing their effectiveness and lethality. The Naval Fires Control System (NFCS) (Project 2325) develops systems that will support mission planning for 5"/62, ERGM and Land Attack Missiles. It will automate shipboard land attack battle management duties to be interoperable and consistent with joint C4ISR systems. These shipboard weapon systems will significantly improve the Navy's ability to support OMFTS. The Land Attack Technology program element also includes the transition of Advance Technology Demonstrations (ATDs) and Pre-Planned Product Improvements (P3Is) into the NSFS program. Hardened Precision Sensors for Missiles and Projectiles (Project 9360) compliments an ongoing Phase II SBIR to develop a Miniature Electromechanical System (MEMS) Annular Rotating Sensor (MARS). It will conduct hardware prototyping and evaluate gun hardening approaches for a potential very low cost, high performance guidance and control unit. The Affordable Weapons System (AWS) (Project 9359) is a COTS based Land Attack and Strike missions missile that can loiter and be directed to the target by the shooter or a Forward Observer (FO/FAC). The Millennium Gun System (MGS) (Project 9362) supports the investigation of a 35mm minor caliber gun mount and associated munitions for ship self defense mission area capability in USN Surface Ships. The 57mm Gun qualification and Test (Project 9542) - The 57mm Gun Sysm is being procured and installed on US Coast Guard Integrated Deepwater System Cutters and is planned to be installed on other Naval platforms. Effort encompasses complete qualification and fire control system development for 57mm MK 110 Mod 0.</p>								

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 1 of 56)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification					DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4				PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support				
COST (\$ in Millions)	FY 2004 ⁽³⁾	FY 2005	FY 2006 ⁽¹⁾	FY 2007 ⁽¹⁾	FY 2008 ^(1,2)	FY 2009 ^(1,2)	FY 2010 ⁽¹⁾	FY 2011 ⁽¹⁾
Project Cost	63.652	34.606	10.849	17.912	30.323	41.250	29.241	18.372
RDT&E Articles Qty						60		
⁽¹⁾ Funding in FY06 - FY11 will be provided to the winner of the ERM competitive contract. ⁽²⁾ If ERGM wins the competitive contract, 60 rounds procured in FY08 to support DT/OT; if BTERM II wins, 60 rounds procured in FY09 ⁽³⁾ Funding includes FY 2004 Congressional Adds for NSFS: ANSR Project 9052 - \$16.355M, AMCGD Project 9051 - \$3.295M, HPSFMP Project 9360 - \$2.766M ⁽⁴⁾ Funding includes FY05 Conressional Add: AMCGD Project 9051 - \$3.367M A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The funds provide for the development of two separate 5" guided projectiles; the Extended Range Guided Munition (ERGM) and the Ballistic Trajectory Extended Range Munition (BTERM) II as part of the ERM demonstration. ERGM is being executed as a formal ACAT program while ERM is a demonstration project via a Broad Agency Announcement. Both will be executed through the end of FY05. In FY06, a full and open competition will be held to select a single 5" guided projectile for System Development and Demonstration leading to an Initial Operational Capability in FY11. These funds also provide for the development of 5" MK 45 gun modifications. The modifications (i.e. Mod 4) strengthen the gun to accommodate higher firing loads to fire extended range munitions. Other activities include an upgrade to the MK 160 Gun Fire Control System (MOD 6 to a MOD 8) that provides a direct digital interface with the gun and an improved propelling charge (EX-167) to provide the higher firing energy required to launch ERGM. This project also includes the demonstration and the advancement of gun-launched guided projectile technologies such as MARS, the demonstration and advancement of long-range modular scalable gun designs, the transition of ATDs and Pre-Planned Product Improvements (P3Is), and installation of ERM compatibilty upgrades into the NSFS envelope.								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: right;">27.267</td><td style="text-align: right;">4.460</td><td style="text-align: right;">0.000</td><td style="text-align: right;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	27.267	4.460	0.000	0.000	RDT&E Articles Quantity				
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RDT&E Articles Quantity																			
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R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support																	
B. Accomplishments/Planned Program (Cont.)																			
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	FY 04	FY 05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	0.909	0.333	0.000	0.000															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>3.000</td><td>1.300</td><td>0.500</td><td>1.750</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>						FY 04	FY 05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	3.000	1.300	0.500	1.750	RDT&E Articles Quantity				
	FY 04	FY 05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	3.000	1.300	0.500	1.750															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 4 of 56)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support																	
B. Accomplishments/Planned Program (Cont.)																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.167</td><td style="text-align: center;">0.446</td><td style="text-align: center;">0.250</td><td style="text-align: center;">0.250</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	0.167	0.446	0.250	0.250	RDT&E Articles Quantity				
	FY 04	FY 05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	0.167	0.446	0.250	0.250															
RDT&E Articles Quantity																			
Continue development and testing of the Gun Fire Control Modification and required interfaces .																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">3.295</td><td style="text-align: center;">3.367</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	3.295	3.367	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	3.295	3.367	0.000	0.000															
RDT&E Articles Quantity																			
Continue fabrication and development of AMCGD gun. Begin testing of the 5" version of the Advance Modular, Scalable, Compact, Long-Range Gun Design.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">2.766</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	2.766	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	2.766	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Begin hardware prototyping for gun hardening and evaluation of manufacturing processes for high yield MEMS devices.																			

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 5 of 56)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 05Pres Controls)	65.097	38.345	6.516	5.469
Current BES/FY06 President's Budget: (FY04-07 Pres Budget Controls)	63.652	34.606	10.849	17.912
Total Adjustments	-1.445	-3.739	4.333	12.443
Summary of Adjustments:				
Miscellaneous Adjustments	-1.445	-0.306	0.033	0.088
Extended Range Guided Munition Reduction	0.000	-6.800	0.000	0.000
Advanced XLR Medium Caliber Gun	0.000	3.367	0.000	0.000
Change ERGM to ERM	0.000	0.000	0.000	6.755
ERM	0.000	0.000	4.300	5.600
	-1.445	-3.739	4.333	12.443
<p>The Land Attack Technology PE comprises multiple programs to provide a Naval Surface Fire Support capability. The challenge is the coordinated delivery of the Mk 45 Mod 4 Gun System, extended range munition capability, the Mk 160 Fire Control upgrades and the EX-167 Propelling Charge upgrade. These together provide a significant enhancement to Naval Surface Fire Support. The ERGM program was restructured reflecting schedule delays associated with test failures, budget shortfalls, and recognition of the extended range munition source selection plan. The contractor began the ERGM LBFT series in FY04. Awarded contract in 3Q FY04 for the BTERM II demonstration. ERM source selection will occur in 2Q FY06 with IOC planned for FY11. Advanced Medium Caliber Gun Demonstrator continues fabrication and begins testing. Hardened Precision Sensors continues prototyping.</p>				
<p>Technical: N/A</p>				

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support		

D. OTHER PROGRAM FUNDING SUMMARY:

	<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>FY2007</u>	<u>FY2008</u>	<u>FY2009</u>	<u>FY2010</u>	<u>FY2011</u>	<u>Complete</u>	<u>Cost</u>
PAN,MC BL, 025300	2.903	0.500	0.000	0.000	0.000	0.000	69.828	124.414		
WPN BLI:4217, E5004	34.338	15.164	1.316	1.676	0	0	0	0		

E. ACQUISITION STRATEGY:

The ERGM development contract was awarded to Texas Instruments (now Raytheon Missile Systems) as a result of a competitive acquisition process. TI provided a corporate investment of \$55M that was applied to development. When full rate production commences for ERM a competitive procurement will be awarded under a fixed price contract. The gun is being developed under a sole source arrangement with United Defense, the sole source manufacturer of the 5" MK 45 Gun Mount. The Fire Control (MK 160) is being developed by the Naval Surface Warfare Center, Dahlgren and the propelling charge is being developed by the Naval Surface Warfare Center, Indian Head. The BTERM II demonstration is via a BAA contract award. ERM source selection will occur in FY06. The AMCGD demonstration was awarded to AOT. The Hardened Precision Sensors prototyping will be awarded to Archangel Systems.

F. MAJOR PERFORMERS:

Prime Contractor for ERM: TBD

Prime Contractor for ERGM development: Raytheon Missile Systems located in Tucson, AZ. Contract awarded to Texas Instruments (TI) in September 1996. Raytheon subsequently purchased TI and moved operations to Tucson location.

Prime Contractor for Gun development: United Defense Limited Partnership (UDLP) located in Minneapolis, MN. Contract awarded to UDLP in February 1996 to modify the existing 5"/54 gun to a 5"/62 Gun to accomodate handling, loading, and firing the ERGM round.

Prime Contractor for BTERM II development: Alliant TechSystems located in Woodland Hills, CA. Contract awarded May 2004.

Prime Contractor for AMCGD development: AOT located in Waldorf, MD.

Prime Contractor for HPSFMP development: Archangel Systems located in Auburn, AL.

Primary Navy Warfare Center: Naval Surface Warfare Center (NSWC) located in Dahlgren, VA. Serve as the Technical Direction Agent, program management for the Integrated Product Team Leaders, and responsible for all Land Based Flight testing and evaluation. NSWC, Indian Head is development activity for ERGM Propelling Charge.

Prime Contractor ANSR: Alliant TechSystems located in Woodland Hills, CA.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-4			0603795N/Land Attack Technology			2156/9051/9052/9360Naval Surface Fire Support								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Privatization	CPAF	UDLP, Louisville, KY	3.908											
Primary Hardware Development	CPIF/FF	UDLP, Minneapolis, MN (C5223)	58.738	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	59.657
	CPFF	UDLP, Minneapolis, MN (C4101)	6.954	2.000	11/03	0.800	11/04	0.500	11/05	1.750	11/06	CONT	CONT	48.414
	CPAF/IF	Raytheon, Tucson, AZ	160.444	17.255	11/03	4.466	11/04	0.000	11/05	0.000	N/A	CONT	CONT	182.862
	WR	NSWC Dahlgren, VA	56.867					0.250		0.250				N/A
	WR	NSWC Indian Head, MD	15.088											N/A
	WR	NSWC Port Hue., CA	25.386											N/A
LRIP	CPAF/IF	Raytheon, Tucson, AZ	0.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	0.000
LCGEU	CPFF	Draper, Cambridge, MA	13.611	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	13.611
	CPAF/IF	Raytheon, Tucson, AZ	1.492	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	1.492
	WX/WR	NSWC	3.259	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	VAR	Miscellaneous	0.734	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
BTERM II Demonstration	CPIF/AF	ATK, Woodland Hills, CA	0.000	7.913	06/04	14.744	11/04	0.000	N/A	0.000	N/A	CONT	CONT	22.657
	WX/WR	NSWC	0.000	0.190	11/03	1.317	11/04	0.000	N/A	0.000	N/A	CONT	CONT	N/A
ERM SDD	TBD	TBD	0.000	0.000	N/A	0.000	N/A	9.224	1/06	14.398	11/06	CONT	CONT	TBD
ANSR Demonstration	CPFF	Draper, Cambridge, MA	10.323	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	10.323
	CPIF/AF	ATK, Woodland Hills, CA	0.000	15.350	05/04	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	15.350
	WX/WR	NSWC	3.035	0.574	06/04	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	SS/CPAF	JHU/APL	0.430	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	VAR	Miscellaneous	0.090	0.431	VAR	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
AMCGD Demonstration	CPFF	AOT, Waldorf, MD	5.268	2.898	09/04	3.367	N/A	0.000	N/A	0.000	N/A	CONT	CONT	11.533
	WX/WR	NSWC	0.462	0.102	07/04	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	VAR	Miscellaneous	0.000	0.295	VAR	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
Hardened Precision Sensor	CPFF	Archangel Systems, Auburn	0.000	2.400	07/04	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	2.400
	WX/WR	NSWC	0.000	0.150	06/04	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
	VAR	Miscellaneous	0.000	0.216	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
MEMS	VAR	Miscellaneous	2.000	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
Systems Engineering	WX/WR	NSWC	14.662	1.300	11/03	0.579	11/04	0.000	N/A	0.000	N/A	CONT	CONT	N/A
Systems Engineering	VAR	Miscellaneous	33.281	0.000	N/A	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	N/A
Award Fees	CPAF/IF	Raytheon, Tucson, AZ	3.369	0.000	11/03	0.800	11/04	0.000	N/A	0.000	N/A	CONT	CONT	4.915
Subtotal Product Development			419.401	51.074		26.073		9.974		16.398		CONT	CONT	CONT
Development Support Equipment														
Software Development														
Training Development														
Integrated Logistics Support	WR/WX	NSWC	7.695	0.964	11/03	0.106	11/04	0.000	N/A	0.000	N/A	CONT	CONT	N/A
Configuration Management														
Technical Data														
GFE														
Subtotal Support			7.695	0.964		0.106		0.000		0.000		CONT	CONT	CONT

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/WX	NSWC	27.451	7.393	11/03	4.188	11/04	0.000	11/05	0.000	11/06	CONT	CONT	N/A
Operational Test & Evaluation														
Tooling														
GFE														
Subtotal T&E			27.451	7.393		4.188		0.000		0.000		CONT	CONT	N/A
Contractor Engineering Support														
Government Engineering Support	WR/WX	NSWC	15.595	1.400	11/03	1.066	11/04	0.500	11/05	0.964	11/06	CONT	CONT	N/A
Project Engineering Support	WR/WX	NSWC	5.869	0.800	11/03	1.073	11/04	0.000	11/05	0.000	11/06	CONT	CONT	N/A
Program Management Support	WR/WX	Various	10.126	1.921	11/03	2.000	11/04	0.325	11/05	0.500	11/06	CONT	CONT	N/A
Travel	PD	NAVSEA HQ	0.928	0.100	VAR	0.100	VAR	0.050	VAR	0.050	VAR	CONT	CONT	N/A
Labor (Research Personnel)														
Overhead														
Subtotal Management			32.518	4.221		4.239		0.875		1.514		CONT	CONT	N/A
Total Cost			487.065	63.652		34.606		10.849		17.912		CONT	CONT	CONT
Remarks:														

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EXHIBIT R-4, Schedule Profile

DATE:

February 2005

APPROPRIATION/BUDGET ACTIVITY

PROGRAM ELEMENT NAME AND NUMBER

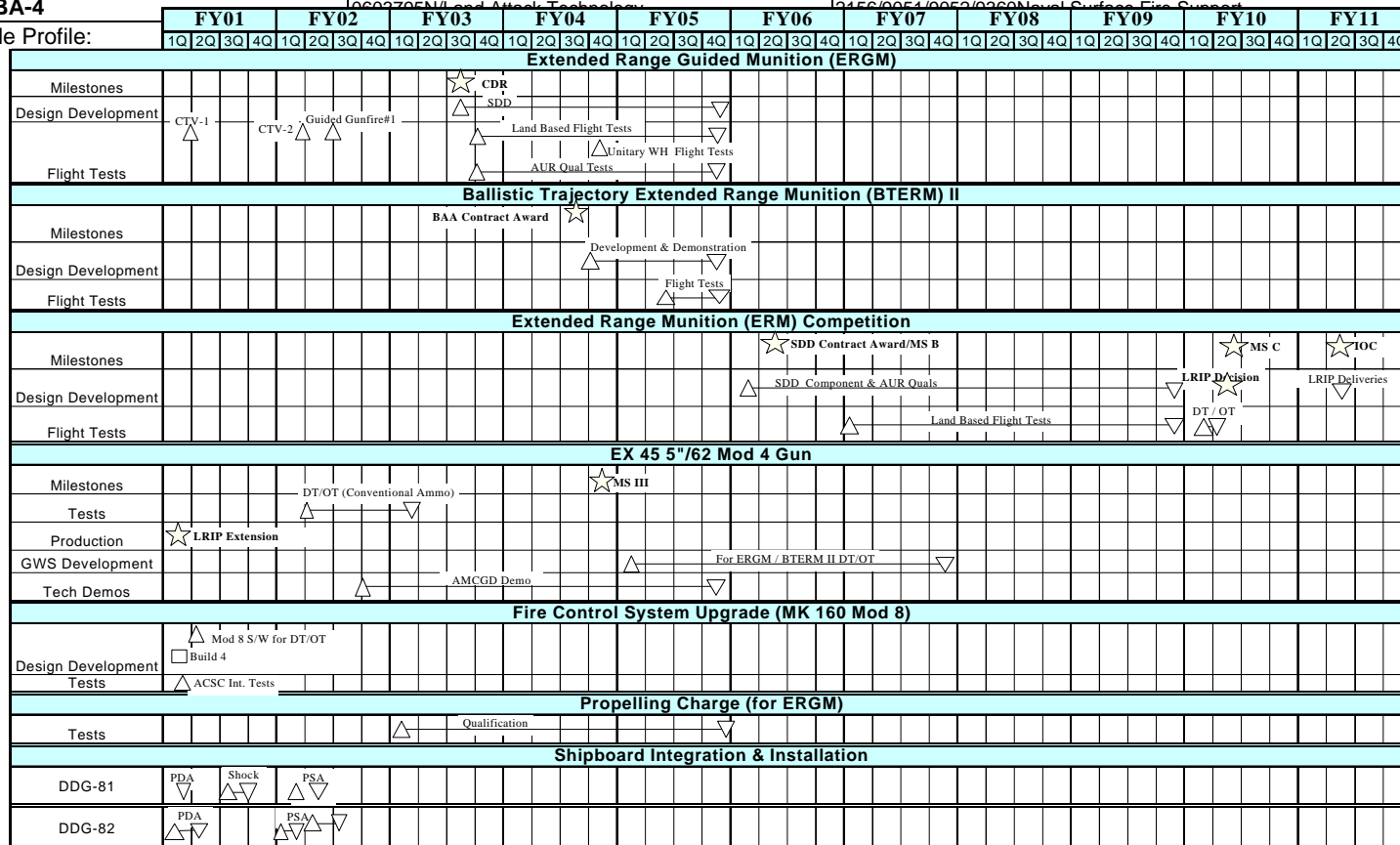
PROJECT NAME AND NUMBER

RDT&E, N / BA-4

0603705N/Land Attack Technology

0456/0054/0052/0260/Naval Surface Fire Support

D. (U) Schedule Profile:



R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 10 of 56)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail				DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4				PROJECT NUMBER AND NAME 2156/9051/9052/9360Naval Surface Fire Support				
Schedule Profile for NSFS Munition	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
ERGM								
Systems Development & Demonstration	1Q-4Q	1Q-4Q						
Land Based Flight Test Series	1Q-4Q	1Q-4Q						
Unitary Warhead Flight Test	4Q							
Component & All-Up Round Qualifications (Part of SDD)	1Q-4Q	1Q-4Q						
DevelopTesting (DT)/Operational Testing(OT)								
Operational Evaluation (OPEVAL) Rounds Decision								
Operational Evaluation (OPEVAL) Award								
LRIP Decision								
LRIP Deliveries								
MS C								
IOC								
BTERM II								
BAA Contract Award	3Q							
Systems Development & Demonstration	3Q-4Q	1Q-4Q						
Flight Tests		2Q-4Q						
ERM COMPETITION								
SDD Contract Award/MS B			2Q					
Land Based Flight Test				1Q-4Q	1Q-4Q	1Q-4Q		
Component & All-Up Round Qualifications (Part of SDD)			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Technical Evaluation (TECHEVAL)							1Q	
Operational Evaluation (OPEVAL)							2Q	
LRIP Decision							2Q	
LRIP Deliveries								2Q
MS C							2Q	
IOC								2Q
EX 45 5"/62 MOD 4								
Development Testing (DT) (Conventional Ammo)								
Operational Test (OT) (Conventional Ammo)								
MS III	4Q							
GWS Development & Integration for ERM		1Q <-----> 4Q						
PROPELLING CHARGE (for ERGM)								
Qualification Tests	1Q-4Q	1Q-4Q						

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 11 of 56)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4				PROJECT NUMBER AND NAME 2325/Naval Fires Control System				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY2011
Project Cost	5.984	6.075	3.346	2.386	1.483	1.757	1.797	1.836
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification: Naval Fires Control System (NFCS) covers the mission planning and coordination for future Naval Surface Fire Support system requirements. NFCS will plan, coordinate and manage the firing of the new Naval Surface Fires Support (NSFS) weapon systems including the 5"/62 caliber gun and Conventional Munitions. It will be available to amphibious ships, command ships, and the DD-X program if selected by the full service contractor. The NFCS phase I will be interfacing with the Advanced TOMAHAWK Weapons Control Systems (ATWCS) and the Tactical TOMAHAWK Weapons Control Systems (TTWCS) in order for the NFCS to share the Advanced Tactical Display Console (ATDC) with the ATWCS and TTWCS. Prototyping, demonstrations and developments were conducted during FY00 through FY02. Developmental testing was conducted in FY03 and Operational testing is being conducted in FY04. Naval Surface Fire Support (NSFS) functionality and hardware/software improvements to incorporate OPEVAL deficiencies will be done in FY05. The NFCS phase II functionality (Battle Force Tactical Trainers (BFTT) integration, Massing of fires, Surface Fires Coordination, improved air de-confliction) will be developed and implemented in FY06 throughout the FYDP.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROJECT NUMBER AND NAME 2325/Naval Fires Control System	
B. Accomplishments/Planned Program				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	2.065	3.550	2.150	1.085
RDT&E Articles Quantity				
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"> Funding provides software and system engineering analysis and development, reuse and integration of government and commercial computer programs to support extended range munitions and other naval weapon applications. </div>				
<div style="border: 1px solid black; min-height: 100px; margin-top: 20px;"></div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.421	0.404	0.199	0.150
RDT&E Articles Quantity				
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"> Funding supports hardware configuration to support NFCS implementation. Support DT validation. </div>				
<div style="border: 1px solid black; min-height: 100px; margin-top: 20px;"></div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.806	0.909	0.399	0.301
RDT&E Articles Quantity				
<div style="border: 1px solid black; min-height: 60px; margin-top: 10px;"> Funding provides Technical Direction Agent support, joint requirements investigation, Concept of Operations (CONOPs) scenario development. </div>				
<div style="border: 1px solid black; min-height: 100px; margin-top: 20px;"></div>				

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2325/Naval Fires Control System		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.399	0.404	0.299	0.150
RDT&E Articles Quantity				
<div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.299	0.303	0.299	0.200
RDT&E Articles Quantity				
<div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.994	0.505	0.000	0.500
RDT&E Articles Quantity				
<div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div>				

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	2325/Naval Fires Control System		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous Pres Budget: (FY 05 PresBud Controls)	6.001	6.135	3.351	2.384
Current BES/President's Budget: (FY 06 Pres Budget Controls)	5.984	6.075	3.346	2.386
Total Adjustments	-0.017	-0.060	-0.005	0.002
Summary of Adjustments				
Cancelled accounts	-0.015	0.000	0.000	0.000
Section 8105: Reduce IT	0.000	-0.004	0.000	0.000
Section 8122: Assumed Management Adjustment	0.000	-0.019	0.000	0.000
Section 8131: Non Statutory	0.000	-0.036	0.000	0.000
Issue 74664: 702 . OSD 09 Nuclear Physical	0.000	-0.001	0.000	0.000
Customer Rate Adjustment	0.000	0.000	-0.006	-0.004
PBD 604 Adjustment	0.000	0.000	0.001	0.002
PBD 426 - 612	0.000	0.000	0.000	0.001
PBD 426 - 614	0.000	0.000	0.000	0.003
Cancelled accounts	-0.002	0.000	0.000	0.000
Subtotal	-0.017	-0.060	-0.005	0.002
Schedule:				
NFCS milestone III and IOC scheduled adjustment from first quarter FY04 to 3rd quarter FY04 due to test ship availability for TECHEVAL and OPEVAL and software development delay.				
Technical:				
N/A				

R-1 SHOPPING LIST - Item No. 74

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 15 of 56)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2325/Naval Fires Control System				
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
O&MN 1D4D, 070812N	2.397	2.366	2.211	2.167	2.650	2.706	2.792	2.879	20.168	
OPN BL, 511200	4.129	2.828	6.057	5.023	4.788	4.104	4.212	4.320	35.461	
 E. ACQUISITION STRATEGY:										
A sole source contract has been awarded to GDIS for Phase 1. Phase 1 is being executed in 2 steps. Step 1 is to integrate the NFCS Phase 1 with ATWCS and Step 2 is to integrate NFCS Phase 1 with TTWCS.										
 F. MAJOR PERFORMERS:										
NSWC/DD - Technical Direction Agent, Software Development Agent and Systems Engineering Lead. NUWC/KP - Hardware Design Agent and Hardware Developer. NSWC/PHD - Test and Evaluation Agent and Integrated Logistics Support Agent. SPAWARSCEN, San Diego - Common Operating Environment (COE) and Adjunct Processor Developer.										

R-1 SHOPPING LIST - Item No. 74

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603795N/Land Attack Techn		2325/Naval Fires Control System									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Software Development	SS/CPAF	GDIS, Arlington, VA	27.517	0.000		0.000						CONT	CONT	TBD
	SS/CPAF	LM/MDS, Valley Forge, PA	19.079	0.000		0.000						CONT	CONT	
	WR/WX	NSWC, Dahlgren, VA	6.780	1.522	10/03	3.143	10/04	2.056	10/05	1.111	10/06	CONT	CONT	
	VAR	VARIOUS	1.119									CONT	CONT	
	WR/WX	SSC/SD	3.836	0.400	10/03	0.400	10/04	0.300	10/05	0.100	10/06	CONT	CONT	
Systems Engineering	WR	SSC/SD	2.951									CONT	CONT	
	WR/WX	NSWC, Dahlgren, VA	16.605	0.500	10/03	0.582	10/04	0.200	10/05	0.100	10/06	CONT	CONT	
	SS/CP	VITRO/BAE	0.670	0.000	N/A	0.000	N/A					CONT	CONT	
	VAR	VARIOUS	1.304									CONT	CONT	
Ancillary Hardware Development	WR/WX	NUWC, Keyport Division	10.074	0.400	10/03	0.400	10/04	0.100	10/05	0.070	10/06	CONT	CONT	
	WR/WX	NSWC/PT HUE, CA	4.732	0.403	10/03	0.403	10/04	0.150	10/05	0.070	10/06	CONT	CONT	
	VAR	PMFATDS	3.536	0.040	N/A	0.000	N/A					CONT	CONT	
	SS/CPAF	JHU/APL	1.362									1.362	1.362	
	SS/CPFF	JHU/APL	0.000	0.121	05/04							CONT	CONT	
	WR	NSWC, Dahlgren, VA	2.236	0.000	N/A	0.000	N/A					CONT	CONT	
	VAR	VARIOUS	1.541	0.000	N/A	0.000	N/A					CONT	CONT	
LAM FC Hardware/Software Dev	SS/CPFF	LM/Baltimore, MD	4.181										4.181	
TERMINATED	SS/CPAF	LM/MDS, Valley Forge, PA	12.131										12.131	
	SS/CPFF	UDLP	0.455										0.455	
	WR	NSWC, Dahlgren, VA	1.162										1.162	
	WR	SSC/SD	0.486										0.486	
LAM FC Systems Engineering	SS/CPFF	JHU/APL	0.386										0.386	
TERMINATED	WR	NSWC/PT HUE, CA	0.361										0.361	
Award Fees			3.979										3.979	
Subtotal Product Development			126.483	3.386		4.928		2.806		1.451		CONT	CONT	
Remarks:														
Development Support Equipment														
Software Development		NSWC, Panama City	0.049											
Training Development	VAR	VARIOUS	0.487	0.000		0.000		0.000						
Integrated Logistics Support	VAR	VARIOUS	4.560	0.105	Various	0.105	Various	0.090	Various	0.105	Various	CONT	CONT	
Configuration Management														
Technical Data														
GFE														
Subtotal Support			5.096	0.105		0.105		0.090		0.105		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603795N/Land Attack Techn		2325/Naval Fires Control System									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/WX	NSWC/PT HUE, CA	5.315	0.300	10/03	0.300	10/05	0.300	10/05	0.200	10/06	CONT	CONT	
	VAR	Various	1.500											
Operational Test & Evaluation	VAR	Various	2.948	2.000	10/03	0.500	10/04	0.000	10/05	0.500	10/06	CONT	CONT	
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			9.763	2.300		0.800		0.300		0.700				
Remarks:														
BTR			0.000											
Contractor Engineering Support														
Government Engineering Support														
Program Management Support	VAR	VARIOUS	4.349	0.143	Various	0.192	Various	0.120	Various	0.100	Various	CONT	CONT	
Travel	PD	NAVSEA HQ	0.405	0.050	Various	0.050	Various	0.030	Various	0.030	Various	CONT	CONT	
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			4.754	0.193		0.242		0.150		0.130		CONT	CONT	
Remarks:														
Total Cost			146.096	5.984		6.075		3.346		2.386		CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 18 of 56)

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CLASSIFICATION:

EXHIBIT R-4														DATE: February 2005																														
APPROPRIATION/BUDGET ACTIVITY RDT&E, N BA-4								PROGRAM ELEMENT NAME AND NUMBER 0603795N/Land Attack Technology								PROJECT NAME AND NUMBER 2325/Naval Fires Control System																												
D. (U) Schedule Profile:																																												
	FY01				FY02				FY03				FY04				FY05				FY06				FY07				FY08				FY09				FY10				FY11			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Naval Fires Control System (NFCS) Phase I																																												
Milestones / Reviews	△ CDR				△ WSES RB				△ SSSTRP				△ WSES RB								☆ MS III / IOC				☆ FOT&E																			
Design Development																					▽																							
Tests																																												
Tests - DT/OT																																												
Phase II																																												

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R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 20 of 56)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9362/Millennium Gun System					
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		0.000	1.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty			1000							

* FY 2004 Millenium Gun System Program Add - \$1.176

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

These funds provide for the initial review of the 35mm Millennium Gun and ammunition development process and planning for successful weapon suitability. It also supports the Weapon System Explosives Safety Review Board (WSESRB) review, testing and certification process as well as required logistics support analyses and planning. The gun is a candidate system for future USN ship classes.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROJECT NUMBER AND NAME 9362/Millennium Gun System																	
B. Accomplishments/Planned Program																		
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">1.176</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">1000</td><td></td><td></td><td></td></tr></tbody></table>					FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.176	0.000	0.000	0.000	RDT&E Articles Quantity	1000			
	FY 04	FY 05	FY 06	FY 07														
Accomplishments/Effort/Subtotal Cost	1.176	0.000	0.000	0.000														
RDT&E Articles Quantity	1000																	
Conduct basic research, planning, safety and logistics investigations for the 35mm Millennium Gun Mount for the manufacture of the first article test rounds.																		
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>					FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07														
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000														
RDT&E Articles Quantity																		
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>					FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07														
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.000														
RDT&E Articles Quantity																		

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603795N/Land Attack Technology	9362/Millennium Gun System		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 05 Pres Controls)	1.187	0.000	0.000	0.000
Current BES/FY06 NAVCOMPT Budget: (DON Controls)	1.176	0.000	0.000	0.000
Total Adjustments	-0.011	0.000	0.000	0.000
Summary of Adjustments				
Non-pay Inflation Savings	-0.001	0.000	0.000	0.000
FY04 SBIR (9 Apr 04)	-0.010	0.000	0.000	0.000
Subtotal	-0.011	0.000	0.000	0.000
<p>Millennium Gun Mount Program comprises of research, logistics elements, testing and engineering necessary to qualify the 35mm Millennium Gun Mount for USN/USCG use. The contractor has currently completed some basic planning and research into this effort and this will be reviewed by NSWC and continued. Any additional T&E and ISEA efforts for this project will be planned in FY-04 with possible continuation in FY-05.</p>				
Technical: N/A				

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005											
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9362/Millennium Gun System												
D. OTHER PROGRAM FUNDING SUMMARY: N/A <table><thead><tr><th><u>FY2004</u></th><th><u>FY2005</u></th><th><u>FY2006</u></th><th><u>FY2007</u></th><th><u>FY2008</u></th><th><u>FY2009</u></th><th><u>FY2010</u></th><th><u>FY2011</u></th><th><u>Complete</u></th><th><u>Cost</u></th></tr></thead></table> E. ACQUISITION STRATEGY: The Millennium Gun Program will procure components and munitions necessary for the test and evaluation as well as support of the Millennium Gun Mount. The gun is developed by Oerlikon (Switzerland) and is licensed for manufacture and sale by Lockheed Martin in the United States. This system is a candidate gun mount for HSV class ships as well as other future ships for the USN. Work will be conducted by the NSWC centers at Louisville and Dahlgren in support of WSESRB certification, T&E, logistics planning and preparation for initial operational capability for HSV type ships or other surface ships as necessary. Provisions will be made for zero cost bailments of equipment for T&E as necessary. F. MAJOR PERFORMERS: Millennium Gun Mount: Prime Contractor for Millennium Gun is Lockheed Martin, Akron, Ohio. Primary Navy Warfare Center: Naval Surface Warfare Center, Louisville will provide program and acquisition management. NSWC Dahlgren will support in WSESRB research and T&E functions.					<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>FY2007</u>	<u>FY2008</u>	<u>FY2009</u>	<u>FY2010</u>	<u>FY2011</u>	<u>Complete</u>	<u>Cost</u>
<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>FY2007</u>	<u>FY2008</u>	<u>FY2009</u>	<u>FY2010</u>	<u>FY2011</u>	<u>Complete</u>	<u>Cost</u>					

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: February 2005								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603795N/Land Attack Techno		PROJECT NUMBER AND NAME 9362/Millennium Gun System									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Millennium Gun Mount Demonstration	WX	NSWC PHD Louisville, KY	0.000	0.823	Various	0.000		0.000		0.000		CONT	CONT	
	TBD	Lockheed Martin, Akron, OH	0.000	0.353	08/04	0.000		0.000		0.000		CONT	CONT	
Subtotal Product Development			0.000	1.176		0.000		0.000				CONT	CONT	
Development Support Equipment														
Software Development														
Training Development														
Integrated Logistics Support														
Configuration Management														
Technical Data														
GFE														
Subtotal Support			0.000	0.000		0.000		0.000				CONT	CONT	
Remarks:														

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)						DATE: February 2005								
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603795N/Land Attack Tech		9362/Millennium Gun System									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Operational Test & Evaluation														
Tooling														
GFE														
Subtotal T&E														
Contractor Engineering Support														
Government Engineering Support														
Project Engineering Support														
Program Management Support														
Travel														
Labor (Research Personnel)														
Overhead														
Subtotal Management														
Total Cost			0.000	1.176		0.000						CONT	CONT	CONT
Remarks:														

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

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EXHIBIT R-4, Schedule Profile						DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER			
RDT&E, N / BA-4				0603795N/Land Attack Technology				9362/Millennium Gun System			

D. (U) Schedule Profile:

FY01				FY02				FY03				FY04				FY05				FY06				FY07				FY08				FY09				FY10				FY11			
1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
35mm Millennium Gun Mount																																											
Milestones												★	WSESRB Review								★	WSESRB Final																					
Tests													△	Land Based Tests								▽																					
Production													★	Test Rounds for LBT																													
Tech Demos													△	LSA/Log Demo								▽																					

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[illegible]

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RDTEN Budget Item Justification

(Exhibit R-2, page 28 of 56)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network				
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	19.253*	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								
<p>*Funding includes FY2004 Congressional Adds for NFN Project 2871 - \$.970M; NFN Project 9361 - \$2.401M; NFN Project 9363 - \$1.635M</p> <p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The Distributed Common Ground System – Navy (DCGS-N) is the Navy’s portion of the OSD DCGS effort. DCGS is a cooperative effort between the services, agencies, and DoD to provide systems capable of automating, coordinating, and correlating, in real time, the reception, processing, exploiting, storing and disseminating of multiple source intelligence (MULTI-INT) from airborne and national reconnaissance assets to provide time-critical fire control solutions for advanced weapon systems and sensors and situational awareness to support C2 decision making and planning. DCGS utilizes the entire spectrum of available intelligence data including Measurements Analysis and Signatures Intelligence (MASINT) data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery Intelligence (IMINT). The automation/correlation provided by DCGS-N will provide the Navy an ability to quickly target and re-target precision strike weapons, greatly enhancing their effectiveness and lethality.</p> <p>The DCGS-N Converged Architecture (CA) brings together the proven imagery exploitation capabilities of Joint Services Imagery Processing System – Navy (JSIPS-N) Tactical Input Segment (TIS) and the precision mensuration capability of the Precision Targeting Workstation (PTW) and merges them with the Time Critical Strike/Targeting (TCS/T) capability developed by the Joint Fires Network (JFN) and disseminates this throughout the ashore and afloat nodes through the Joint Concentrator Architecture (JCA). This converged capability provides unparalleled flexibility to the warfighter and rapid response capability against rapidly relocatable, time critical targets.</p> <p>DCGS-N Converged Architecture will become part of the DoD DCGS Network Enterprise via the DCGS Integration Backbone (DIB). Engineering work is funded to migrate legacy JFN/JSIPS systems to this network environment. As DCGS 10.2 is developed by the Air Force, DCGS-N will stay abreast of expanding requirements and ensure compliance with the DoD DCGS network architecture.</p> <p>The former JFN and JSIPS-N programs have been merged by direction of ASN (RDA) as of January 2004. OSD directed that the JSIPS and JFN funding lines be consolidated in PE 0305208N starting FY05. Although the FY05 funding lines are depicted as separate programs, the DCGS-N program has consolidated its goals and taskings and the resulting combined and centrally coordinated effort is reflected in the budget lines and categories beginning in FY05. In FY06, the budget lines will be merged permanently.</p>								

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	2.401	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Development of hardware for NFN.																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.970</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.970	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.970	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Development of Tactical Dissmeination Module (TDM).																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.950</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.950	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.950	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Acquisition Planning/ DoD Documentation.																			

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 30 of 56)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network		
B. Accomplishments/Planned Program (Cont.)				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	5.707	0.000	0.000	0.000
RDT&E Articles Quantity				
Support hardware/software, GFE buy, installation and upgrades for existing interfaces and communications.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.825	0.000	0.000	0.000
RDT&E Articles Quantity				
Program Management Support.				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.950	0.000	0.000	0.000
RDT&E Articles Quantity				
DT/OT&E.				

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 31 of 56)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network																	
B. Accomplishments/Planned Program (Cont.)																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	2.350	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Spiral Development																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.950</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.950	0.000	0.000	0.000	RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost	0.950	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Acquisition Strategy, AoA, TEMP and other Rrequired Acquisition Documentation, Technical Data Collection																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">4.150</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	4.150	0.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	4.150	0.000	0.000	0.000															
RDT&E Articles Quantity																			
Rqmts Definition - System Eng, Config Mgt, Architecture Support																			

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RD TEN Budget Item Justification

(Exhibit R-2, page 32 of 56)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																								
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																																																									
RDT&E, N / BA-4	0603795N/Land Attack Technology	2927/2871/9361/9363/9209 Naval Fires Network																																																									
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 10%;">FY 2004</th> <th style="text-align: right; width: 10%;">FY 2005</th> <th style="text-align: right; width: 10%;">FY 2006</th> <th style="text-align: right; width: 10%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget: (FY 05 Pres Controls)</td> <td style="text-align: right;">19.711</td> <td style="text-align: right;">8.663</td> <td style="text-align: right;">8.565</td> <td style="text-align: right;">7.783</td> </tr> <tr> <td>Current President's Budget (FY 06 Pres Controls)</td> <td style="text-align: right;">19.253</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.458</td> <td style="text-align: right; border-top: 1px solid black;">-8.663</td> <td style="text-align: right; border-top: 1px solid black;">-8.565</td> <td style="text-align: right; border-top: 1px solid black;">-7.783</td> </tr> <tr> <td> Summary of Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR Withholds</td> <td style="text-align: right;">-0.453</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Inflation Savings</td> <td style="text-align: right;">-0.005</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Realign JFN/JSIPS-N</td> <td></td> <td style="text-align: right;">-8.663</td> <td></td> <td></td> </tr> <tr> <td> Technical Correction</td> <td></td> <td></td> <td style="text-align: right;">-8.565</td> <td style="text-align: right;">-7.783</td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-0.458</td> <td style="text-align: right; border-top: 1px solid black;">-8.663</td> <td style="text-align: right; border-top: 1px solid black;">-8.565</td> <td style="text-align: right; border-top: 1px solid black;">-7.783</td> </tr> </tbody> </table> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Schedule:</p> <p style="padding-left: 20px;">N/A</p> <p>Technical:</p> <p style="padding-left: 20px;">N/A</p> </div> </div>						FY 2004	FY 2005	FY 2006	FY 2007	Funding:					Previous President's Budget: (FY 05 Pres Controls)	19.711	8.663	8.565	7.783	Current President's Budget (FY 06 Pres Controls)	19.253	0.000	0.000	0.000	Total Adjustments	-0.458	-8.663	-8.565	-7.783	Summary of Adjustments					SBIR Withholds	-0.453				Inflation Savings	-0.005				Realign JFN/JSIPS-N		-8.663			Technical Correction			-8.565	-7.783	Subtotal	-0.458	-8.663	-8.565	-7.783
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R-1 SHOPPING LIST - Item No. 74

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network				

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
Naval Fires Control System/ 511200	24.0	4.8							0	0
Distributed Common Ground System/ PE 0305208N (A2174)		3.6	12.3	11.5	5.7	4.6	4.7	4.8	Continuing	Continuing
Common Imagery Ground Surface Systems/ 291400		49.6	20.9	94.2	103.5	85.0	86.7	88.4	Continuing	Continuing

E. ACQUISITION STRATEGY:

The Distributed Common Ground Station - Navy (DCGS-N) program will utilize contracting vehicles already in place for the existing Army Tactical Exploitation System (TES) program. The Navy plan is to adapt Army TES and develop interoperability with the USAF DCGS 10.2 DIB for support of Navy Network Centric Warfare Time Critical Targeting.

F. MAJOR PERFORMERS:

HQ/SAF - Develop and Build Naval Fires Network System Hardware/Software

Naval Air Warfare Center (China Lake) - Systems Engineering and Interface Development/Test

Northrup Grumman Corporation (NGC), Electronic Sensors and Systems Division (ESSD), of Baltimore, Maryland

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UNCLASSIFIED

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	IP	SAF/FMB/OLE (Air Force)	42.183	2.401	11/03							0.000	44.584	
Ancillary Hardware Development	WX	NAWC, China Lake, CA	11.600	0.970	11/03							0.000	12.570	
Component Development	VAR	VARIOUS	1.245	5.707	11/03							0.000	6.952	
Ship Integration	WR	NSWC PHD, Pt. Hueneme, CA	1.270									0.000	1.270	
Ship Suitability														
Systems Engineering	WX	VARIOUS	2.355	4.150	11/03							0.000	6.505	
Training Development	WX	VARIOUS	2.700									0.000	2.700	
Licenses														
Tooling														
GFE	IP	SAF/FMB/OLE (Air Force)	2.000									0.000	2.000	
Award Fees														
Subtotal Product Development			63.353	13.228		0.000		0.000		0.000		0.000	76.581	
Remarks:														
Development Support	MIPR	Various	1.034	0.950	11/03							0.000	1.984	
Software Development	VAR	Various	3.759	2.350	11/03							0.000	6.109	
Software Development (SAIP)	IP	SAF/FMB/OLE (Air Force)	1.047									0.000	1.047	
Training Development	VAR	Various	2.830									0.000	2.830	
Integrated Logistics Support	WX/IP	Various	2.100									0.000	2.100	
Configuration Management														
Technical Data	WX/MIPR	Various	3.050	0.950	11/03							0.000	4.000	
GFE	VAR	Various	0.600									0.000	0.600	
Award Fees														
Subtotal Support			14.420	4.250		0.000		0.000		0.000		0.000	18.670	
Remarks: The former JFN and JSIPS-N programs have been merged by direction of ASN (RDA) as of January 2004. OSD directed that the JSIPS and JFN funding lines be consolidated in PE 0305208N starting FY05. Although the FY05 funding lines are depicted as separate programs, the DCGS-N program has consolidated its goals and taskings and the resulting combined and centrally coordinated effort is reflected in the budget lines and categories beginning in FY05.														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX/MIPR	VAR	0.350	0.475	11/03							0.000	0.825	
Operational Test & Evaluation	WX/MIPR	VAR		0.475	11/03							0.000	0.475	
Live Fire Test & Evaluation	WX/MIPR	VAR	5.611									0.000	5.611	
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			5.961	0.950		0.000		0.000		0.000		0.000	6.911	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support	IP	VARIOUS	2.692	0.825	11/03							0.000	3.517	
Travel	PD	NAVSEA HQ	0.350									0.000	0.350	
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			3.042	0.825		0.000		0.000		0.000		0.000	3.867	
Remarks:														
Total Cost			86.776	19.253		0.000		0.000		0.000		0.000	106.029	
Remarks: The former JFN and JSIPS-N programs have been merged by direction of ASN (RDA) as of January 2004. OSD directed that the JSIPS and JFN funding lines be consolidated in PE 0305208N starting FY05. Although the FY05 funding lines are depicted as separate programs, the DCGS-N program has consolidated its goals and taskings and the resulting combined and centrally coordinated effort is reflected in the budget lines and categories beginning in FY05.														

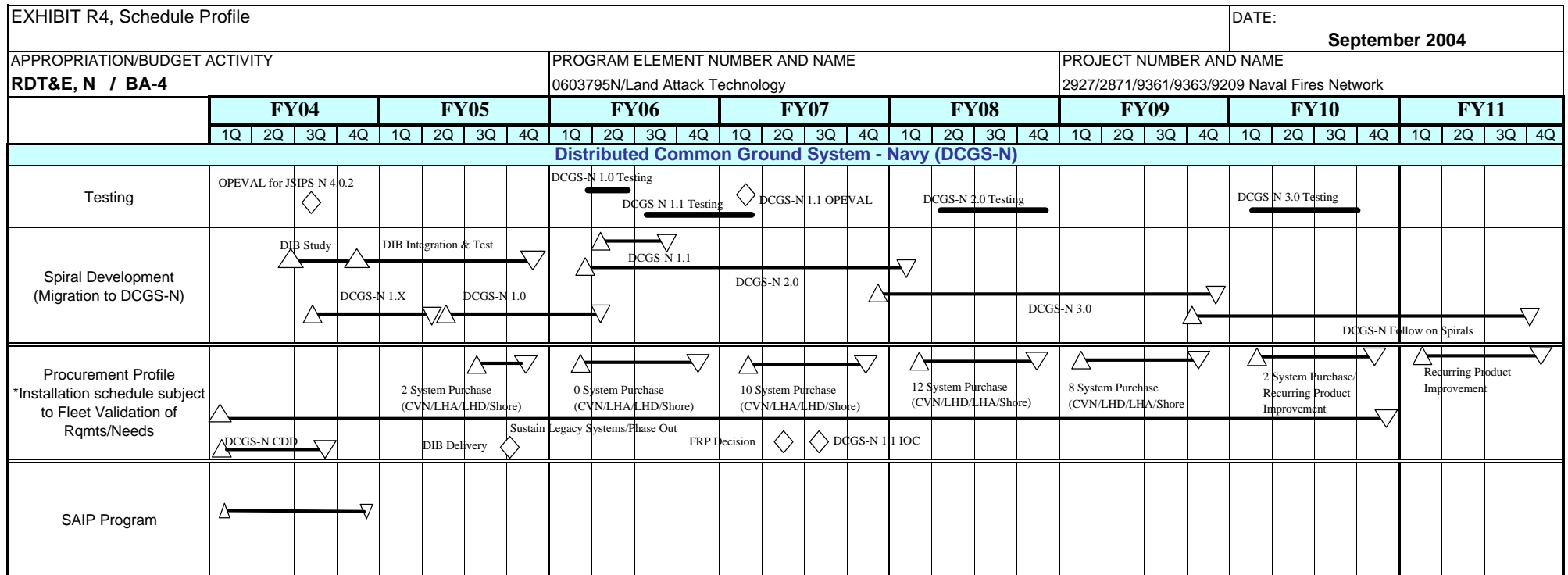
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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 36 of 56)

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R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603795N/Land Attack Technology				PROJECT NUMBER AND NAME 2927/2871/9361/9363/9209 Naval Fires Network			
Schedule Profile			FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Testing										
	JSIPS 4.0.2 OPEVAL		3Q							
	DCGS-N 1.0 Testing				1Q-2Q					
	DCGS-N 1.1 Testing				3Q-4Q	1Q				
	DCGS-N 1.1 OPEVAL					1Q				
	DCGS-N 2.0 Testing						2Q-4Q			
	DCGS-N 3.0 Testing								1Q-3Q	
Spiral development (Migration to Converged Architecture)										
	DIB Study		2Q-4Q							
	DIB Integration and Test		4Q	1Q-4Q						
	DCGS-N 1.X Development		3Q-4Q	1Q-2Q						
	DCGS-N 1.0 Development			2Q-4Q	1Q-2Q					
	DCGS-N 1.1 Development				2Q-3Q					
	DCGS-N 2.0 Development				1Q-4Q	1Q-4Q	1Q			
	DCGS-N 3.0 Development					4Q	1Q-4Q	1Q-4Q		
	DCGS-N Follow on Spiral Development									
Acquisition Program										
	CDD		1Q-3Q							
	Sustain/Phase Out Legacy Equipment		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
	DCGS-N Procurement			3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
	DIB Delivery			4Q						
	FRP Decision					2Q				
	DCGS-N 1.1 IOC					3Q				
	Recurring Product Improvement/P3I								1Q-4Q	1Q-4Q
SAIP Program										
	SAIP		1Q-4Q							

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 38 of 56)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9359/Affordable Weapon System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	27.045	48.433	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Affordable Weapons System (AWS) is a COTS based Land Attack and Strike missions missile that can loiter and be directed to the target by the shooter or a Forward Observer (FO/FAC).								

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System																	
B. Accomplishments/Planned Program																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	8.800	3.000	0.000	0.000															
RDT&E Articles Quantity																			
Production Engineering/Production Tooling																			
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RDT&E Articles Quantity																			
Missile Fabrication and Assembly																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.200	4.800	0.000	0.000															
RDT&E Articles Quantity																			
Launcher Design, Fabrication and Test																			

R-1 SHOPPING LIST - Item No. 74

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Exhibit R-2, RDTEEN Budget Item Justification

(Exhibit R-2, page 40 of 56)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">3.500</td><td style="text-align: center;">2.000</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	3.500	2.000	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	3.500	2.000	0.000	0.000															
RDT&E Articles Quantity																			
Missile Design Maturation, Systems Engineering																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	4.500	0.000	0.000															
RDT&E Articles Quantity																			
IR Seeker & Sensor development and Data Link Development																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">3.500</td><td style="text-align: center;">1.500</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	3.500	1.500	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	3.500	1.500	0.000	0.000															
RDT&E Articles Quantity																			
Test Demonstration and Evaluation																			

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System																	
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RDT&E Articles Quantity																			
Warhead design and assessment																			
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RDT&E Articles Quantity																			
Hazard Assessment & Insensitive Munitions testing																			
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Accomplishments/Effort/Subtotal Cost	0.395	10.033	0.000	0.000															
RDT&E Articles Quantity																			
Test Ranges, Support, missile component testing , and Facilities including E3/HERO, PHST & Ship compatibility, and developmental testing																			

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Exhibit R-2, RDTE Budget Item Justification

(Exhibit R-2, page 42 of 56)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System																	
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RDT&E Articles Quantity																			
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Program Management																			
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Accomplishments/Effort/Subtotal Cost	0.150	3.000	0.000	0.000															
RDT&E Articles Quantity																			
Force Integration, Alternate Warhead, and Production Readiness																			

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Exhibit R-2, RDTEEN Budget Item Justification

(Exhibit R-2, page 43 of 56)

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9359/Affordable Weapon System																																																				
<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Funding:</th> <th style="text-align: right; width: 10%;">FY 2004</th> <th style="text-align: right; width: 10%;">FY 2005</th> <th style="text-align: right; width: 10%;">FY 2006</th> <th style="text-align: right; width: 10%;">FY 2007</th> </tr> </thead> <tbody> <tr> <td>President's Budget: (FY 05 Pres Controls)</td> <td style="text-align: right;">27.688</td> <td style="text-align: right;">28.906</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>President's Budget: (FY 06 Pres Controls)</td> <td style="text-align: right;">27.045</td> <td style="text-align: right;">48.433</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.643</td> <td style="text-align: right; border-top: 1px solid black;">19.527</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Summary of Adjustments</p> <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 40%;">Issue 67705 - FY04 SBIR</td> <td style="text-align: right;">-0.617</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Issue 67607 - FY04 Non-pay Inflation Savings</td> <td style="text-align: right;">-0.026</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Misc</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">-0.190</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Congressional Add</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">20.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Issue 72490 -Non-Statutory Funding Set Aside</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">-0.283</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">-0.643</td> <td style="text-align: right;">19.527</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 40px;">Schedule:</p> <p style="margin-left: 40px;">None</p> <p style="margin-top: 40px;">Technical:</p> <p style="margin-left: 40px;">None</p>					Funding:	FY 2004	FY 2005	FY 2006	FY 2007	President's Budget: (FY 05 Pres Controls)	27.688	28.906	0.000	0.000	President's Budget: (FY 06 Pres Controls)	27.045	48.433	0.000	0.000	Total Adjustments	-0.643	19.527	0.000	0.000	Issue 67705 - FY04 SBIR	-0.617	0.000	0.000	0.000	Issue 67607 - FY04 Non-pay Inflation Savings	-0.026	0.000	0.000	0.000	Misc	0.000	-0.190	0.000	0.000	Congressional Add	0.000	20.000	0.000	0.000	Issue 72490 -Non-Statutory Funding Set Aside	0.000	-0.283	0.000	0.000	Total	-0.643	19.527	0.000	0.000
Funding:	FY 2004	FY 2005	FY 2006	FY 2007																																																		
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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9359/Affordable Weapon System				
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E. ACQUISITION STRATEGY:										
N/A										
F. MAJOR PERFORMERS:										
Titan Corp - Primary hardware development & fabrication Various Naval Actys - Warhead design & assessment, Engineering Support - NSWC Dah Div, VA										

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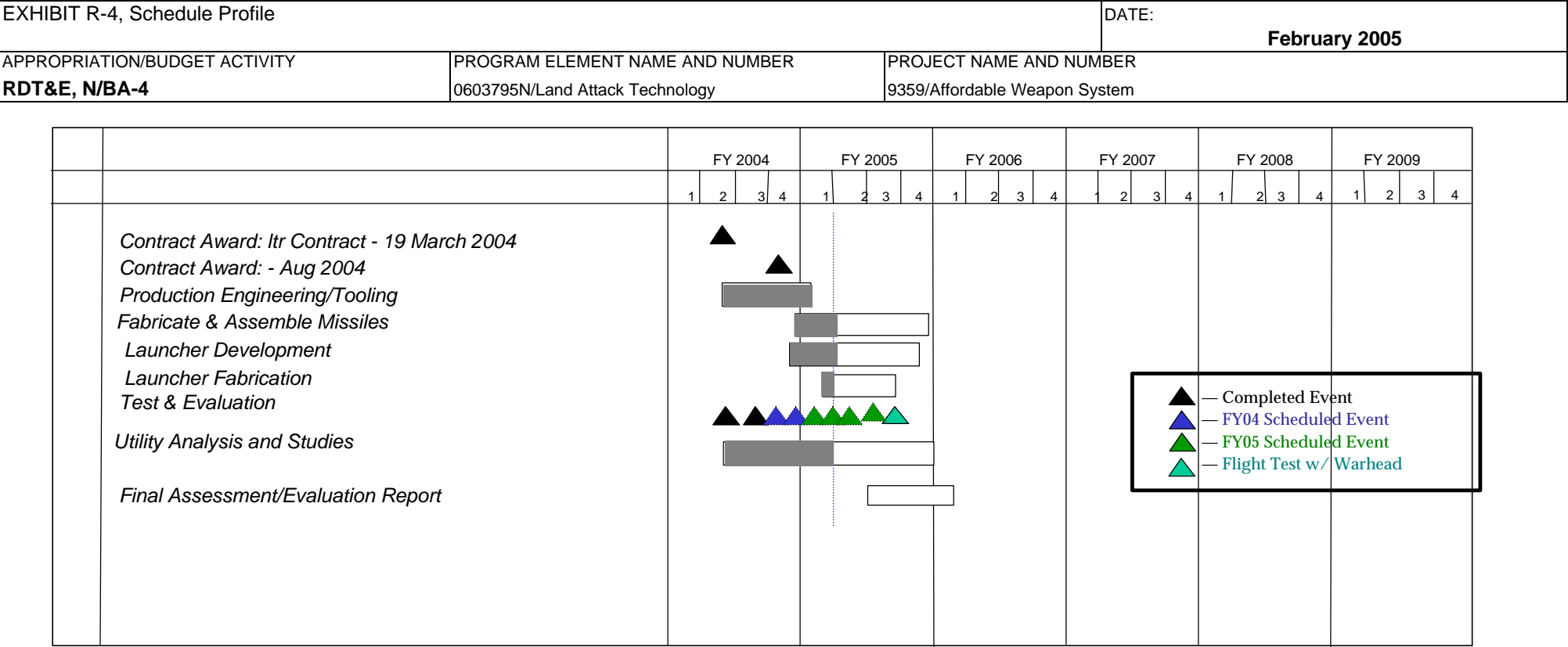
Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603795N/Land Attack Technology			9359/Affordable Weapon System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 4 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Production Engineering & Tooling	SS	Titan Corp, San Diego CA	0.000	8.800	02/04	1.500	03/05				10.300	
Missile Fabrication & Assy	SS	Titan Corp, San Diego CA	0.000	4.400	02/04	11.800	03/05				16.200	
Launcher Design, Fab & Test	SS	Titan Corp, San Diego CA	0.000	1.200	02/04	4.800	03/05				6.000	
Program Management	SS	Titan Corp, San Diego CA	0.000	1.100	02/04	1.000	03/05				2.100	
T&E	SS	Titan Corp, San Diego CA	0.000	3.500	02/04	1.500	03/05				5.000	
Missile Maturation & System Eng	SS	Titan Corp, San Diego CA	0.000	3.500	02/04	2.000	03/05				5.500	
IR Seeker & Senor Development	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	2.000	03/05				2.000	
Data Link Development	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	2.500	03/05				2.500	
Force Integration	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	1.500	03/05				1.500	
Alternate Warhead (SFW)	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	0.400	03/05				0.400	
Production Cost Reduction	SS	Titan Corp, San Diego CA	0.000	0.000	N/A	1.500	03/05				1.500	
Safety/Sys/Missile/Launcher Eng	WX	Var.	0.000	1.500	N/A	2.650	10/04				4.150	
System Analysis	WX	Var.	0.000	1.000	02/04	0.750	N/A				1.750	
Hazard Assessment & Insensitive Mu	WX	Var.	0.000	0.000	N/A	1.500	10/04				1.500	
Test Ranges, Support & Facilities	WX	Var.	0.000	0.395	N/A	10.033	10/04				10.428	
Warhead Design & Assessment	WX	NSWC Dah	0.000	1.200	N/A	0.500	10/04				1.700	
Program Management Support	CPFF	Var.	0.000	0.300	01/04	1.400	10/04				1.700	
Production Readiness Review	WX	Var.	0.000	0.150	N/A	0.600	10/04				0.750	
Force Integration	WX	Var.	0.000	0.000	N/A	0.250	10/04				0.250	
Alternate Warhead (SFW)	WX	Var.	0.000	0.000	N/A	0.250	10/04				0.250	
											0.000	
Subtotal Product Development			0.000	27.045		48.433					75.478	
Remarks:												

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 46 of 56)

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 48 of 56)

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EXHIBIT R-2a, RDT&E Project Justification					DATE:			
					February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROJECT NUMBER AND NAME					
RDT&E, N / BA-4			9542/ 57mm Gun Qualification and Test					
COST (\$ in Millions)	FY 2004	FY 2005 ⁽¹⁾	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY2011
Project Cost	0.000	11.191	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								
⁽¹⁾ FY05 Congressional Addd								

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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;">Conduct certification/ safety qualification testing of the MK 110 Mod 0 gun and designated ammunition/fuzes to USN standards to meet USCG NSC requirements. Perform engineering support analysis and test result assessment of the gun and associated interfaces. Provide program management support. Provide a plan and schedule to update the Weapon Systems Explosive Safety Review Board (WSES RB) technical data packages.</div>																			
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;">Provide qualification engineering support, engineering drawings, test evaluation support, provisional documentation development, and tooling.,</div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY06</th><th style="width: 15%;">FY07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.000</td><td style="text-align: center;">8.700</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	0.000	8.700	0.000	0.000	RDT&E Articles Quantity				
	FY 04	FY 05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	0.000	8.700	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px; min-height: 80px;">Award contract in 2nd qtr FY05 for continuation of the 57mm Mk110 Mod 0 gun/ammunition certification project to complete testing and analysis.</div>																			

R-1 SHOPPING LIST - Item No. 74

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9542/ 57mm Gun Qualification and Test		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 05Pres Controls)	0.000	0.000	0.000	0.000
Current BES/FY06 President's Budget: (FY04-07 Pres Budget Controls)	0.000	11.191	0.000	0.000
Total Adjustments	0.000	11.191	0.000	0.000
Summary of Adjustments:				
FY05 Congressional Add	0.000	11.191	0.000	0.000
	0.000	11.191	0.000	0.000
Technical: N/A				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005							
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603795N/Land Attack Technology	PROJECT NUMBER AND NAME 9542/ 57mm Gun Qualification and Test								
D. OTHER PROGRAM FUNDING SUMMARY:										
N/A	<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>FY2007</u>	<u>FY2008</u>	<u>FY2009</u>	<u>FY2010</u>	<u>FY2011</u>	<u>Complete</u>	<u>Cost</u>
E. ACQUISITION STRATEGY:										
The 57mm Gun Sysem is being procured and installed on U.S. Coast Guard Integrated Deepwater System Cutters and is planned to be installed on other Naval platforms. Effort encompasses complete qualification and fire control system development for 57mm MK 110 Mod 0 gun. Work will be performed by NSWC centers at Louisville and Dahlgren in support of qualification analysis/testing for the 57mm gun system . United Defense will execute the task required to establish a continental U.S. production capability at ULDP Louisville, KY.										
F. MAJOR PERFORMERS:										
Primary Navy Warfare Center: Naval Surface Warfare Center, PHD, Lousiville will provide engineering support and engineering drawings, test evaluation support, provisional documentation development, shipboard installation test and checkout development documentation for the 57mm MK 110 Gun Mod and ancillary items. NSWC Dahlgren will support FY05 qualification analysis and testing for the 57mm gun system and ammunition.										

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Exhibit R-3 Cost Analysis (page 2)											DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4			PROGRAM ELEMENT 0603795N/Land Attack Technology			PROJECT NUMBER AND NAME 9542/ 57mm Gun Qualification and Test								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/WX	NSWC												
Operational Test & Evaluation														
Tooling	WX	NSWC/PHD (Louisville)				0.052						0.052	0.052	
GFE														
Subtotal T&E			0.000	0.000		0.052		0.000		0.000		0.052	0.052	
Contractor Engineering Support														
Government Engineering Support														
Project Engineering Support														
Program Management Support	WX	NSWC/Dahlgren	0.000	0.000	N/A	0.150	N/A	0.000	N/A	0.000	N/A	0.150	0.150	
Travel														
Labor (Research Personnel)														
Overhead														
Subtotal Management			0.000	0.000		0.150		0.000		0.000		0.150	0.150	
Total Cost			0.000	0.000		11.191		0.000		0.000		11.191	11.191	
Remarks:														

R-1 SHOPPING LIST - Item No. 74

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EXHIBIT R-4, Schedule Profile						DATE: February 2005									
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-4				PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER 9542 / 57MM Gun Qualificaion and Test							

D. (U) Schedule Profile:

	FY03				FY04				FY05				FY06				FY07				FY08				FY09				FY10				FY11			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
9542 / 57mm Gun Qualification & Test																																				
Milestones											★																									
Progress Reviews											△																									
WSESRB Review											△																									

R-1 SHOPPING LIST · ITEM 74

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CLASSIFICATION:

UNCLASSIFIED R-1 SHOPPING LIST - Item No. 74 Exhibit R-2, RD TEN Budget Item Justification (Exhibit R-2, page 56 of 56)

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EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N /BA-4 Adv Comp Dev & Prototypes			0603851M Non-Lethal Warfare DEM/VAL			C2319 Non-Lethal Weapons Program					
COST (\$ in Millions)			FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost			40.895	45.414	43.981	44.613	45.362	46.007	47.013	48.001	
RDT&E Articles Qty											
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:											
This project covers non-lethal weapon (NLW) systems which are those systems that by their design, provide a new non-lethal capability that minimizes fatal or permanent injuries and undesired damage to property and the environment. Instead, these systems are designed to stun, incapacitate, or hinder movement of individuals, crowds, or equipment. The availability of NLWs allows commanders less than lethal options, particularly in urban warfare and military operations other than war, i.e., peacekeeping, humanitarian assistance and disaster relief, as well as special operations.											
(U) B. ACCOMPLISHMENTS/PLANNED PROGRAM:											
COST (\$ in Millions)			FY 2004	FY 2005	FY 2006	FY 2007					
Accomplishment/Effort Subtotal Cost			1.430	1.550	2.000	2.100					
RDT&E Articles Qty											
Execution oversight, administration and support of the Joint NLW Program and technologies database.											
COST (\$ in Millions)			FY 2004	FY 2005	FY 2006	FY 2007					
Accomplishment/Effort Subtotal Cost			0.645	0.645	0.645	0.695					
RDT&E Articles Qty											
Evaluation of NLWs by Service warfighting laboratories and Joint Forces Command (JFCOM) for direct user feedback of various NL technologies and munitions.											
COST (\$ in Millions)			FY 2004	FY 2005	FY 2006	FY 2007					
Accomplishment/Effort Subtotal Cost			1.612	1.180	1.388	1.438					
RDT&E Articles Qty											
Modeling and simulation (M&S) of NLWs in warfighter training/wargaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.											
COST (\$ in Millions)			FY 2004	FY 2005	FY 2006	FY 2007					
Accomplishment/Effort Subtotal Cost			1.040	1.840	2.100	2.268					
RDT&E Articles Qty											
Pursuit of new technology through open competition of industry, academia and government laboratory sources for NL capabilities.											
COST (\$ in Millions)			FY 2004	FY 2005	FY 2006	FY 2007					
Accomplishment/Effort Subtotal Cost			1.075	1.505	1.080	1.080					
RDT&E Articles Qty											
Airburst Non-Lethal Munition (formerly known as Objective Individual Combat Weapons (OICW)) – Continue development of NL munitions for the “next generation” 25mm combat weapon that will exploit the ability to air burst munitions with NL payloads at longer ranges with existing systems.											

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EXHIBIT R-2a, RDT&E Project Justification			DATE:		
APPROPRIATION/BUDGET ACTIVITY			February 2005		
RDT&E, N /BA-4 Adv Comp Dev & Prototypes			PROJECT NUMBER AND NAME		
0603851M Non-Lethal Warfare DEM/VAL			C2319 Non-Lethal Weapons Program		
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		1.129	1.149	1.680	1.717
RDT&E Articles Qty					
Program support for each service's coordination and participation in the Joint NLW Program.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		1.075	1.075	0.000	0.000
RDT&E Articles Qty					
NL Mortar – Continue development and demonstration of NL mortar casing devises for delivery of NL payloads at extended ranges.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		2.100	2.300	0.702	0.000
RDT&E Articles Qty					
Mk19 NL Munition - Development of a NL munition for the 40mm Mk19 Grenade Machine Gun.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		0.400	0.000	0.000	0.000
RDT&E Articles Qty					
Non-lethal technology innovation initiative to allow pursuit of new NL materials and technologies through a network of academic institutions.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		4.518	4.857	4.945	4.860
RDT&E Articles Qty					
Active Denial System (ADS) Advanced Concept Technology Demonstration (ACTD) - Jointly sponsored effort that continues the development of a demo asset for evaluation, testing and target assessment of a High Mobility Multipurpose Wheeled Vehicle (HMMWV) mounted directed energy system.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		1.612	0.538	0.540	0.000
RDT&E Articles Qty					
Advanced Tactical Laser (ATL) Advanced Concept Technology Demonstration (ACTD) - Jointly sponsored effort to demonstrate technology concepts to satisfy the critical mission needs for an ultra-precision strike capability.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		0.810	0.538	0.000	0.000
RDT&E Articles Qty					
Clear A Space Device - Currently in Technology Development, pending Milestone B Decision in late FY04 to advance downselects into System Development and Demonstration (SDD).					

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EXHIBIT R-2a, RDT&E Project Justification			DATE:	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME	February 2005	
RDT&E, N /BA-4 Adv Comp Dev & Prototypes		0603851M Non-Lethal Warfare DEM/VAL	C2319 Non-Lethal Weapons Program	
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006
Accomplishment/Effort Subtotal Cost		1.000	2.525	0.000
RDT&E Articles Qty				
Non-Lethal Technology Research, Marine Corps Research University - This Congressional plus-up is intended to assist in the cross-comparison of technology, human effects and long term programatics of several new initiatives and the independent technical assessment of Joint NLWs.				
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006
Accomplishment/Effort Subtotal Cost		1.106	1.400	0.761
RDT&E Articles Qty				
Mobility Denial System (MDS) - Joint evaluation, analysis and testing of anti-traction material and delivery methods/volumnes.				
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006
Accomplishment/Effort Subtotal Cost		4.252	5.117	5.463
RDT&E Articles Qty				
Studies and Analysis – Medical and NL casualty data research and collection; human effects assessments; acceptability analysis; and technical studies/analysis of emerging technologies for possible NL application.				
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006
Accomplishment/Effort Subtotal Cost		4.304	4.847	4.981
RDT&E Articles Qty				
The advanced development of emerging technologies into the acquisition process to satisfy critical joint mission tasks.				
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006
Accomplishment/Effort Subtotal Cost		6.563	6.803	11.253
RDT&E Articles Qty				
System development and design of technology development downselected items to proceed into the acquisition cycle to provide NL technology solutions to critical joint mission tasks.				
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006
Accomplishment/Effort Subtotal Cost		1.500	1.300	1.180
RDT&E Articles Qty				
Develop/expand the NATO Measures of Effectiveness (MOE) efforts, chaired by the U.S. to provide input for Defense Capabilities Initiative (DCI) and NATO assessment of NLW in the Defense planning process. Expanded interaction with COCOM staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions.				

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N /BA-4 Adv Comp Dev & Prototypes		0603851M Non-Lethal Warfare DEM/VAL	C2319 Non-Lethal Weapons Program		
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		2.958	3.225	3.240	3.240
RDT&E Articles Qty					
Pulsed Energy Projectile (PEP) – Explore the development of laser hardware and extensive human effects characterization research and to continue refinement of bio-effects characterization and optimization of lasers as a NL capability.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		0.856	1.700	0.813	0.000
RDT&E Articles Qty					
Tactical Unmanned Ground Vehicle (TUGV) NL Mission Payload Module - Development of NL mission payload modules for integration into the TUGV. This will allow various NL payload modules to be developed and tested for integration on multiple UGVs and allow the user to remotely fire NL payloads.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		0.480	0.890	0.562	0.000
RDT&E Articles Qty					
Vehicle Lightweight Arresting Device (VLAD) - Accelerated development and acquisition of a man-portable, pre-emplaced spiked net vehicle stopper.					
COST (\$ in Millions)		FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort Subtotal Cost		0.430	0.430	0.648	0.776
RDT&E Articles Qty					
Joint Integration Program (JIP) - Select and test newly developed commercial products that may meet the Joint Services' requirements for specific NL capability set common items.					
(U) Total \$		40.895	45.414	43.981	44.613
(U) PROJECT CHANGE SUMMARY:					
		<u>FY2004</u>	<u>FY2005</u>	<u>FY2006</u>	<u>FY2007</u>
(U) FY 2005 President's Budget:		43.929	43.321	43.943	44.434
(U) Adjustments from the President's Budget:					
(U) Congressional/OSD Program Reductions					
(U) Congressional Rescissions					
(U) Congressional Increases					
			2.550		
(U) Reprogrammings		-2.361		-0.343	-0.346
(U) SBIR/STTR Transfer		-0.632			
(U) Minor Affordability Adjustment		-0.041	-0.457	0.381	0.525
(U) FY 2006 President's Budget:		40.895	45.414	43.981	44.613
CHANGE SUMMARY EXPLANATION:					
(U) Funding: See Above.					
(U) Schedule: Not Applicable.					
(U) Technical: Not Applicable.					

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EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME				
RDT&E, N /BA-4 Adv Comp Dev & Prototypes		0603851M Non-Lethal Warfare DEM/VAL				C2319 Non-Lethal Weapons Program				
(U) C. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
(U) PAN,MC BLI 162800, Non-Lethal Munitions	3.679	1.141	1.127	1.229	2.974	0.656	0.316	0.386	Cont	Cont
(U) PMC BLI 220800, Operations Other Than War	0.000	0.000	1.530	1.561	1.639	1.671	1.734	1.767	Cont	Cont
(U) PMC BLI 237100, Operations Other Than War	0.463	1.503	0.000	0.000	0.000	0.000	0.000	0.000	Cont	Cont
(U) Related RDT&E: Not Applicable.										
(U) D. ACQUISITION STRATEGY:										
The JNLW Program strategy is to continue to pursue the fielding of NLW systems through modifying Commercial-Off-The-Shelf (COTS) products for near term capabilities and the development of new technology NLW systems in various stages of acquisition. These are balanced with efforts in modeling and simulation, experimentation, and state-of-the-art technology investment. The acquisition strategy for each weapon system is largely lead service dependent.										
(U) E. MAJOR PERFORMERS:										
FY04-FY07 - ARDEC, Picatinny Arsenal, NJ. Development and evaluation of the Airburst Non-lethal Munition program, the Non-Lethal (NL) Mortar program, the Mk19 Grenade Machine Gun NL Munitions program and the Vehicle Lightweight Arresting Device program.										
FY04-FY07 - Raytheon Company, Rancho Cucamonga, CA. Working with the Air Force Research Laboratory at Kirtland Air Force Base, NM on the Active Denial System (ADS) Advanced Concept Technology Demonstration (ACTD) to continue the evaluation, testing and target assessment of a HMMWV mounted directed energy system.										
(U) SCHEDULE PROFILE: Not Applicable.										

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Exhibit R-3 Cost Analysis							DATE: February 2005							
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
RDT&E, N /BA-4 Adv Comp Dev & Prototypes				0603851M Non-Lethal Warfare DEM/VAL			C2319 Non-Lethal Weapons Program							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development	MIPR	USAIC, Ft. Benning, GA	3.399	0.000		0.000		0.000		0.000		Cont	Cont	
Product Development	MIPR	SMDC, Huntsville, AL	1.400	0.000		0.000		0.000		0.000		Cont	Cont	
Product Development	MIPR	ARDEC, Picatinny, NJ	53.087	6.531	10/03	7.678	10/04	4.799	10/05	3.433	10/06	Cont	Cont	
Product Development	MIPR	SOCOM, McDill AFB, FL	3.000	1.500	12/03	0.500	12/04	0.540	12/05	0.000	12/06	Cont	Cont	
Product Development	WR	NSWC, Various	12.415	1.152	Various	1.478	Various	1.296	Various	1.080	Various	Cont	Cont	
Product Development	MIPR	Kirtland AFB, NM	33.233	3.873	12/03	3.942	12/04	4.945	12/05	4.860	12/06	Cont	Cont	
Product Development	MIPR	JWCF, Ft. Monroe, VA	1.569	0.645	02/04	0.645	02/05	0.540	02/06	0.540	02/07	Cont	Cont	
Product Development	MIPR	Brooks AFB, TX	6.023	5.055	02/04	5.325	02/05	5.463	02/06	6.210	02/07	Cont	Cont	
Product Development	WR/RCP	MCSC, Quantico, VA	18.979	4.658	11/03	4.207	11/04	2.543	11/05	1.080	11/06	Cont	Cont	
Product Development	MIPR	NSMA, Arlington, VA	5.819	2.958	01/04	3.225	01/05	3.240	01/06	3.240	01/07	Cont	Cont	
Product Development	CPFF	MCLB, Albany, GA	1.354	1.300	01/04	2.525	01/05	0.540	01/06	0.648	01/07	Cont	Cont	
Product Development	MIPR	Various - M&S	2.423	1.252	Various	1.613	Various	1.188	Various	1.188	Various	Cont	Cont	
Product Development	MIPR	Various - JIP	4.625	0.540	Various	0.540	Various	2.100	Various	2.268	Various	Cont	Cont	
Product Development	MIPR	Var (Uniformed Services)	10.723	8.442	Various	10.452	Various	13.307	Various	16.441	Various	Cont	Cont	
													0.000	
Subtotal Product Dev			158.049	37.906		42.130		40.501		40.988		Cont	Cont	
Remarks:														
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support Cost	WR	MCSC, Quantico, VA	3.539	0.430	11/03	0.430	11/04	0.450	11/05	0.450	11/06	Cont	Cont	
Support Cost	WR	NSWC, Dahlgren, VA	2.273	0.420	10/03	0.420	10/04	0.440	10/05	0.440	10/06	Cont	Cont	
Support Cost	Various	MCSC, Quantico, VA	6.009	0.470	12/03	0.570	12/04	0.590	12/05	0.635	12/06	Cont	Cont	
Support Cost	Various	Various	4.783	1.669	Various	1.864	Various	2.000	Various	2.100	Various	Cont	Cont	
													0.000	
Subtotal Support			16.604	2.989		3.284		3.480		3.625		Cont	Cont	
Remarks:														
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
T&E Cost													0.000	
T&E Cost													0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Management													0.000	
Management													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000			0.000	
Remarks:														
Total Cost			174.653	40.895		45.414		43.981		44.613		Cont	Cont	

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification

DATE:

February 2005

APPROPRIATION/BUDGET ACTIVITY

RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /

BA-4

R-1 ITEM NOMENCLATURE

0603857N - Joint Combat Identification Evaluation Team (JCIET)

COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	14.465	13.475	15.696	16.782	17.103	17.408	17.767	18.068
2691 - Joint Combat Identification Evaluation Team	14.465	13.475	15.696	16.782	17.103	17.408	17.767	18.068
Quantity of RDT&E Articles								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

JCIET conducts assessments and evaluations of combat identification capabilities in order to reduce the risk of fratricide and other friendly fire incidents. These JCIET events support the U.S. JFCOM mission of joint concept development and experimentation as directed in the Secretary of Defense's (SECDEF's) Defense Planning Guidance. JCIET events are also an integral part of fulfilling JFCOM's responsibility outlined in the SECDEF's Transformation Planning Guidance (TPG) to measure transformation progress through experimentation and evaluation of findings. Capabilities assessments and evaluations of combat identification during these field evaluations are conducted in the following combat mission areas: surface-to-surface, air-to-surface, surface-to-air, and air-to-air. These mission areas may be evaluated at a single exercise or at several different venues during the year. Venue selection and evaluation of a specific mission area are dependent on force availability within a particular exercise. Evaluation of each specific mission area requires full instrumentation of all participants influencing execution of missions within that mission area. All participants both Blue Forces and Opposing Forces (OPFOR) including aircraft, ships and land based assets to include individual soldiers and Marines are fully instrumented. Instrumentation provides time, space, position information and shot pairing for real-time data collection and subsequent detailed analysis. This detailed analysis is required to support findings and recommendations that in turn provide solutions to Combatant Commander's identified combat identification deficiencies. Contractor support is required for instrumentation installation and operation as well as follow-on analysis of the data. A realistic OPFOR is required within each mission area to generate valid combat identification scenarios. This OPFOR consisting of ground, air and naval forces will be real Former Soviet Union (FSU) equipment whenever practical and will be leased and transported from their home base to the various exercise venues.

(U) JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under DEMONSTRATION AND VALIDATION because it includes efforts to evaluate integrated technologies in a realistic operational environment to assess the performance potential of current Tactics, Techniques, and Procedures (TTP), weapons systems, and helps expedite technologies that meet joint warfighters' needs.

R-1 SHOPPING LIST - Item No. 76

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 9)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification

DATE:

February 2005

APPROPRIATION/BUDGET ACTIVITY

PROGRAM ELEMENT NUMBER AND NAME

PROJECT NUMBER AND NAME

RDT&E, N / BA-4

0603857N - Joint Combat Identification Evaluation Team (JCIET)

2691 - Joint Combat Identification Evaluation Team (JCIET)

(U) B. Accomplishments/Planned Program

Field Evaluations	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	4.380	3.075	4.905	5.594
RDT&E Articles Quantity				

JCIET conducts assessments and evaluations of combat identification capabilities in order to reduce the risk of fratricide and other friendly fire incidents. Capabilities assessments and evaluations of combat identification during these field evaluations are conducted in accordance with and in support of the Defense Planning Guidance and Transformation Planning Guidance. Evaluations are conducted in the following combat mission areas: surface-to-surface, air-to-surface, surface-to-air, and air-to-air. These mission areas may be evaluated at a single exercise or at several different venues during the year. Venue selection and evaluation of a specific mission area are dependent on force availability within a particular exercise. Evaluation of each specific mission area requires full instrumentation of all participants influencing execution of missions within that mission area. All participants both Blue Forces and Opposing Forces (OPFOR) including aircraft, ships and land based assets to include individual soldiers and Marines are fully instrumented. Instrumentation provides time, space, position information and shot pairing for real-time data collection and subsequent detailed analysis. This detailed analysis is required to support findings and recommendations that in turn provide solutions to Combatant Commander's identified combat identification deficiencies. Contractor support is required for instrumentation installation and operation as well as follow-on analysis of the data. A realistic OPFOR is required within each mission area as per direction outlined in Director, Force Transformation directive to generate valid combat identification scenarios. This OPFOR consisting of ground, air and naval forces will be real Former Soviet Union (FSU) equipment whenever practical and will be leased and transported from their home base to the various exercise venues.

FY 2004 Accomplishments: The JCIET Evaluation was conducted in conjunction with USJFCOM sponsored Joint National Training Capability (JNTC) enhanced training exercise Combined Joint Task Forces Exercise (CJTFFEX) 04-2 12 – 21 Jun 04. CJTFFEX 04-2 was conducted at various geographically separated areas to include the Joint Training, Analysis, and Simulation Center (JTASC) in Suffolk VA, Camp Lejeune NC, Shaw Air Force Base SC, and the Virginia Capes. The Evaluation provided a realistic, joint task force combat scenario in a littoral battlespace. JCIET also conducted analysis of the USJFCOM J85 sponsored CCID ACTD held June 2004.

FY 2005, 2006, and 2007 Planned: JCIET will conduct combat identification and interoperability evaluations in conjunction with JFCOM test and evaluation events and JNTC exercises in the areas of surface-to-surface, air-to-surface, surface-to-air, and air-to-air. JCIET is also tasked to support the CCID ACTD 2005 experiment to be conducted in Europe. JCIET is also reviewing feasibility of supporting additional JNTC events as tasked by JFCOM. In 2005, JFCOM will expand JCIET's charter to incorporate evaluation requirements across the spectrum of Joint Fires. This may require JCIET to conduct additional evaluations during each Fiscal Year. JCIET operations will continue to require full instrumentation of all blue force and opposing force participants. All platforms including aircraft, ships at sea, and land based assets will be fully instrumented. JCIET evaluations will require full instrumentation of ground maneuver mounted and dismounted elements, airborne platforms, ships at sea and an opposing force (OPFOR) air and ground force instrumentation provides time, space, position information and shot pairing for real time casualty assessment and kill removal and for post-mission and post-evaluation analysis. Data collected from the instrumentation will point to solutions to combat ID deficiencies. In accordance with OSD Director of Force Transformation policy guidance a realistic OPFOR are employed in support of the exercise. JCIET is also directed by charter to provide support to promising Combat Identification enhancements or initiatives with subject matter expertise and/or funding.

JCIET Support	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.849	1.487	1.532	1.578
RDT&E Articles Quantity				

FY04-07: JCIET is a tenant at Eglin AFB and requires base support to include: utilities, cleaning, communications, printing, shipping and vehicles. JCIET maintains and upgrades analytical capabilities with software and hardware improvements. The following major documents are published in preparation for and as a result of Field Evaluations: Evaluation Plan, Spin-Up Plan, BLUFOR and OPFOR Playbooks, National Technical Means Assessment, Redeployment Plan, Quick Look Report, and the Final Report. Briefings on findings and recommendations are prepared and made available for presentation to the Joint Staff, the Services and the Combatant Commanders. JCIET contracts for Technical and Acquisition Management Support through a Host Base contract vehicle.

R-1 SHOPPING LIST - Item No. 76

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 2 of 9)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603857N - Joint Combat Identification Evaluation Team (JCIET)	PROJECT NUMBER AND NAME 2691 - Joint Combat Identification Evaluation Team (JCIET)																	
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>FY04 Accomplishments-FY05-07 Planned: JCIET technical and support manpower for planning, execution, analysis and reporting for combat identification capabilities assessment, findings and recommendations is provided through various Advisory and Assistance Support contracts. JCIET events are developed to mirror real world joint combat operations. JCIET analyzes participant command and control systems, tactical displays, voice and data link communications, identification systems and engagement decisions to determine causes of fratricide and assist in developing findings and recommended solutions. Overall combat effectiveness to include target engagements, lost shot opportunities and missed targets are also evaluated and analyzed. A white force (evaluation control) network is designed and constructed for real-time mission monitoring of evaluation execution. A classified network is also designed and constructed to support participants at different geographical locations in the conduct and debrief of the daily missions at the SECRET level to allow participants the opportunity to discover, learn, and adjust Tactice, Techniques and Procedures (TTP) and systems performance for the subsequent mission.</p> </div>																			
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>FY04 Accomplishments-FY05-FY07 Planned: JCIET hosts or attends numerous planning conferences to include Airspace, OPFOR, Initial Planning, Mid-Planning and Final Planning. Warfighter participants are an integral part of the planning process including scenario development and preparation for interoperability between the services. Site visits required to prepare for events are conducted as necessary. The JCIET staff also provides technical and operational support to forums dealing with combat ID and friendly fire issues.</p> </div>																			

R-1 SHOPPING LIST - Item No. 76

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																																																						
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R-1 SHOPPING LIST - Item No.

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603857N - Joint Combat Identification Evaluation Team (JCIE		PROJECT NUMBER AND NAME 2691 - Joint Combat Identification Evaluation Team (JCIET)			
(U) D. OTHER PROGRAM FUNDING SUMMARY:								
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>To Complete</u>
Not Applicable								<u>Total Cost</u>
 (U) E. ACQUISITION STRATEGY: *								
<p>FY 2004-05. Five-year sole-source (one-year basic with four one-year options) contracts were awarded to SAIC and BAE SYSTEMS on 1 April 2002 (MEVATEC was bought by BAE in April 03, resulting in name change only). The first year option was awarded on 1 April 2003 for both contracts. Second year option commenced November 2004. A two-year sole-source contract was awarded on 16 May 03, to Applied Data Trends, Inc. (ADTi), to provide computer-generated graphic display (Tactical Office software) support. A contract was awarded to Airborne Tactical Advantage Company (ATAC), on 12 May 03, to provide four foreign fighter-type aircraft to support JCIET August 2003 event at Gulfport, MS. JCIET will continue to utilize competitive and sole-source contract procedures, to include reviewing Government agencies, to determine the best vendor to meet JCIET requirements, at the best value.</p>								
 (U) F. MAJOR PERFORMERS:								
NONE								
<p>* Not required for Budget Activities 1,2,3, and 6</p>								

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-4			0603857N - Joint Combat Identification Evaluation Team (JCIET)				2691 - Joint Combat Identification Evaluation Team (JCIET)					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	0.000
Ancillary Hardware Development											0.000	0.000
Systems Engineering											0.000	0.000
Licenses											0.000	0.000
Tooling											0.000	0.000
GFE											0.000	0.000
Award Fees											0.000	0.000
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
Development Support											0.000	0.000
Software Development											0.000	0.000
Training Development											0.000	0.000
Integrated Logistics Support											0.000	0.000
Configuration Management											0.000	0.000
Technical Data											0.000	0.000
GFE											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

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CLASSIFICATION:												
Exhibit R-3 Cost Analysis (page 2)									DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603857N - Joint Combat Identification Evaluation Team (JCIET)			2691 - Joint Combat Identification Evaluation Team (JCIET)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Evaluation Other Costs	MIPR	Various	17.052	2.188	Various	3.876	Various	4.537	Various	Continuing	Continuing	0.000
Operations Costs/Research	MIPR	JCIET/Various	6.014	1.487	Various	1.660	Various	1.718	Various	Continuing	Continuing	0.000
Developmental Test and Evaluation	MIPR	Various	4.650	0.530	Various	0.538	Various	0.548	Various	Continuing	Continuing	
Travel and Conferences	MIPR	JCIET/Various	2.835	0.406	Various	0.412	Various	0.420	Various	Continuing	Continuing	0.000
Operational Test and Evaluation	SS/T&M	SAIC, BAE, CNA / Eglin AFB	36.494	8.507	11/04	8.847	11/05	9.190	11/06	Continuing	Continuing	0.000
Operational Test and Evaluation	CPAF	TAMS / Eglin AFB	0.695	0.357	10/04	0.363	10/05	0.369	10/06	Continuing	Continuing	0.000
Subtotal T&E			67.740	13.475		15.696		16.782		Continuing	Continuing	0.000
Remarks:												
Contractor Engineering Support											0.000	0.000
Government Engineering Support											0.000	0.000
Program Management Support											0.000	0.000
Travel											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
Total Cost			67.740	13.475		15.696		16.782		Continuing	Continuing	0.000
Remarks:												

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CLASSIFICATION:																																
EXHIBIT R4, Schedule Profile																												DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4																PROGRAM ELEMENT NUMBER AND NAME 0603857N - Joint Combat Identification Evaluation Team (JCIET)										PROJECT NUMBER AND NAME 2691 - Joint Combat Identification Evaluation Team (JCIET)						
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Prototype Phase																																
System Development (e.g., Radar System dev.)																																
Equipment Delivery (e.g., EDM Radar Delivery)																																
Software 1XXSW Delivery 2XXSW Delivery																																
Test & Evaluation Milestones																																
Operational Test																																
Planning																																
Publications																																
Production Milestones																																
LRIP I																																
LRIP II																																
FRP																																
Deliveries																																

R-1 SHOPPING LIST - Item No. 76

* Not required for Budget Activities 1, 2, 3, and 6

** The minimum data set to be presented on each R-4, will consist of the items listed above if the individual data point is applicable to the particular project.

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 8 of 9)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:					
APPROPRIATION/BUDGET ACTIVITY RDT&BA-4						PROGRAM ELEMENT 0603857N - Joint Combat Identification Evaluation Team (JCIET)			PROJECT NUMBER AND NAME 2691 - Joint Combat Identification Evaluation Team (JCIET)		
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011			
Prototype Phase											
System Design Review (SDR)											
Milestone II (MSII)											
Contract Preparation											
Software Specification Review (SSR)											
Preliminary Design Review (PDR)											
System Development											
Critical Design Review (CDR)											
Quality Design and Build											
Test Readiness Review (TRR)											
Developmental Testing (DT-IIA)											
Eng Dev Model (EDM) Radar Delivery - Lab											
Software Delivery 1XXSW											
Preproduction Readiness Review (PRR)											
EDM Radar Delivery - Flt Related											
Milestone C (MS C)											
Operational Testing (OT-IIA)											
Start Low-Rate Initial Production I (LRIP I)											
Software Delivery 2XXSW											
Developmental Testing (DT-IIB1)											
Developmental Testing (DT-IIB2)											
Start Low-Rate Initial Production II											
Operational Testing (OT-IIB)	3Q &4Q	2Q-3Q&4Q	4Q	TBD	TBD	TBD	TBD	TBD			
Developmental Testing (DT-IIC)											
Functional Configuration Audit (FCA)											
Low-Rate Initial Production I Delivery											
Technical Evaluation (TECHEVAL)											
Physical Configuration Audit											
Operational Evaluation (OT-IIC) (OPEVAL)											
Low-Rate Initail Production II Delivery											
IOC											
Full Rate Production (FRP) Decision											
Full Rate Production Start											
First Deployment											

R-1 SHOPPING LIST - Item No. 76

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Exhibit R-2, RD8EN Budget Item Justification
(Exhibit R-2, page 9 of 9)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603860N, Joint Precision Approach and Landing System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	22.934	32.077	39.260	44.341	40.779	53.922	34.603	15.467
2329 JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)	22.934	32.077	39.260	44.341	40.779	53.922	34.603	15.467

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program element provides for the development, integration, and testing of JPALS on Navy, Marine Corps, and Coast Guard aircraft, ships, and ground stations. JPALS will allow equipped aircraft to land on any suitable surface world wide (land and sea), while minimizing impacts to aircraft recovery operations due to low ceiling or visibility. The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 94 and the Chief of Staff of the Air Force on 8 August 94. The PALC MNS was validated by the Joint Requirements Oversight Council on 29 August 95. Army Joint Service participation was included in the 28 May 96 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the lead Service. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night, survivable, and mobile precision approach and landing capability. Operating environments include fixed base, tactical, shipboard and special mission. Military and civil interoperability is required. The funds cited above will provide for completion of JPALS Technology Development by mid-FY 2006, support the development of Milestone-B documentation, begin System Development and Demonstration in FY 2006 and support developmental and operational testing through FY 2011. Funding supports the JPALS Tier 1 (CVN-21 and Joint Strike Fighter) acquisition which includes development of the Seabased JPALS system, reference avionics, and the initial integration aboard CV and LH class ships. At Milestone B the Navy will become the lead service for the JPALS program.

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603860N, Joint Precision Approach and Landing System				PROJECT NUMBER AND NAME 2329, Joint Precision Approach and Landing System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	22.934	32.077	39.260	44.341	40.779	53.922	34.603	15.467
RDT&E Articles Qty					4	4		

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development, integration, and testing of JPALS on Navy, Marine Corps, and Coast Guard aircraft, ships, and ground stations. JPALS will allow equipped aircraft to land on any suitable surface world wide (land and sea), while minimizing impacts to aircraft recovery operations due to low ceiling or visibility. The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 94 and the Chief of Staff of the Air Force on 8 August 94. The PALC MNS was validated by the Joint Requirements Oversight Council on 29 August 95. Army Joint Service participation was included in the 28 May 96 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the lead Service. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night, survivable, and mobile precision approach and landing capability. Operating environments include fixed base, tactical, shipboard and special mission. Military and civil interoperability is required. The funds cited above will provide for completion of JPALS Technology Development by mid-FY 2006, support the development of Milestone-B documentation, begin System Development and Demonstration in FY 2006 and support developmental and operational testing through FY 2011. Funding supports the JPALS Tier 1 (CVN-21 and Joint Strike Fighter) acquisition which includes development of the Seabased JPALS system, reference avionics, and the initial integration aboard CV and LH class ships. At Milestone B the Navy will become the lead service for the JPALS program.

The total of eight test articles will include six Seabased and two Landbased JPALS. The Seabased articles will be deployed in the following manner. Four will be deployed on ships, to be cross-decked between various CVN and LH class ships depending upon individual ship availability for test events. One of the Seabased test articles will be deployed in a mobile test van and one at the Landing Systems Test Facility, Patuxent River, MD. The two Landbased test articles will be deployed at air stations. Each test article is anticipated to consist of a UHF antenna subsystem, datalink hardware, a Global Positioning System (GPS) subsystem, a GPS anti-jam subsystem, an inertial navigation subsystem, a control and display subsystem, an uninterruptible power supply, and an equipment rack and cabling.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603860N, Joint Precision Approach and Landing System	PROJECT NUMBER AND NAME 2329, Joint Precision Approach and Landing System																	
B. Accomplishments/Planned Program																			
Technology Development Phase	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	22.934	32.077	16.580																
RDT&E Articles Quantity																			
<p>Demonstrate technology readiness of preferred system concept (PSC) to include hardware and software development for critical technologies (including precision GPS/INS, anti-jam antenna electronics, Low Probability of Intercept data link hardware subsystems, and critical software components to include relative navigation integrity, guidance and control, system monitoring and communications functions). Demonstrate PSC through real-time flight test in an operationally relevant environment. Prepare documentation to support Milestone-B. Develop an SDD contract solicitation package for release to industry. Complete TD phase tasking (assessment of technology maturation, evaluation of data link requirements, assessment of JPALS incorporation into Embedded Global Positioning System/Inertial Navigation System) and close out prime contract. Conduct a source selection for the SDD prime contractor.</p>																			
<hr/> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">System Development & Demonstration Phase</td> <td style="padding: 5px; text-align: center;">FY 04</td> <td style="padding: 5px; text-align: center;">FY 05</td> <td style="padding: 5px; text-align: center;">FY 06</td> <td style="padding: 5px; text-align: center;">FY 07</td> </tr> <tr> <td style="padding: 5px;">Accomplishments/Effort/Subtotal Cost</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px; text-align: center;">22.680</td> <td style="padding: 5px; text-align: center;">44.341</td> </tr> <tr> <td style="padding: 5px;">RDT&E Articles Quantity</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </table>					System Development & Demonstration Phase	FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost			22.680	44.341	RDT&E Articles Quantity				
System Development & Demonstration Phase	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost			22.680	44.341															
RDT&E Articles Quantity																			
<p>Conduct JPALS DAB review and obtain approval to enter SDD Phase. Award and start executing the SDD prime contract. Conduct post-award conference, implement systems engineering process, prepare for and conduct an integrated baseline review, and establish joint government/contractor risk management process. Continue non-recurring engineering efforts under the SDD contract, including requirements identification and decomposition, system requirements review, and preliminary and critical design reviews.</p>																			

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603860N, Joint Precision Approach and Landing System	PROJECT NUMBER AND NAME 2329, Joint Precision Approach and Landing System		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget:	24.034	32.391	29.608	25.332
Current BES/President's Budget:	22.934	32.077	39.260	44.341
Total Adjustments	-1.100	-0.314	9.652	19.009
Summary of Adjustments				
Congressional undistributed reductions		-0.314		
SBIR/STTR Transfer	-1.056			
Programmatic Adjustments			9.254	18.301
Economic Assumptions	-0.022		0.398	0.708
Reprogrammings	-0.022			
Subtotal	-1.100	-0.314	9.652	19.009

Schedule:
During Test and Evaluation Master Plan development, additional test events were included and these are reflected in the revised schedule at exhibit R-4.

Technical:
Not applicable.

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0603860N, Joint Precision Approach and Landing System			PROJECT NUMBER AND NAME 2329, Joint Precision Approach and Landing System				

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
OPN BLI 283100 Shipboard Air Traffic Control	7.791	8.642	7.307	7.537	7.772	7.995	8.228	9.554	Continuing	Continuing

E. ACQUISITION STRATEGY:

TD Phase development is being conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air) and ARINC Engineering Services, California, MD. This effort will provide the concept of operations, performance specifications and integration guides, which will furnish the foundation from which to launch the SDD phase development.

SDD Phase development will consist of Seabased JPALS, related ship and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&E products and tasks. Future procurement of airborne systems will consist of modifications to Original Equipment Manufacture aircraft integration and to existing avionics. Seabased JPALS will be developed by the Navy with government owned or non-proprietary algorithms to an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. Landbased JPALS units will be developed by the Air Force to meet the requirements of all the Services.

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603860N, Joint Precision Approach and Landing System			2329, Joint Precision Approach and Landing System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technology Development Phase											0.000	
Primary Hdw - SRGPS	WR	NAWCAD, Pax River, MD	7.742	0.708	11/04	0.531	11/05				8.981	
Primary Hdw - SRGPS	SS/CR	EMA, Lexington Park, MD	2.714	0.475	12/04						3.189	3.189
Primary Hdw - SRGPS	C/CR	ARINC, California, MD	12.195	12.840	12/04	0.976	12/05				26.011	26.011
Primary Hdw - SRGPS	C/CR	Titan, Lexington Park, MD	2.520	1.041	02/05						3.561	3.561
Primary Hdw - SRGPS	Various	Various	3.966	2.699	02/05	2.375	12/05				9.040	9.040
Primary Hdw - Avionics	WR	NAWCAD, Pax River, MD	0.333	0.450	11/04	0.338	11/05				1.121	
Primary Hdw - Avionics	SS/CR	Honeywell, Clearwater, FL	1.194	1.583	12/04						2.777	2.777
Primary Hdw - Technology *	WR	NAWCAD, Pax River, MD	0.424	0.336	11/04	0.243	11/05				1.003	
Primary Hdw - Data Link ***	SS/CR	Rockwell, Cedar Rapids, IA		1.991	12/04	6.336	12/05				8.327	(see below)
Aircraft Integration	WR	NAWCAD, Pax River, MD	0.562	0.449	11/04	0.337	11/05				1.348	
Ship Integration	WR	NAWCAD, Pax River, MD	2.748	1.047	11/04	0.579	11/05				4.374	
Systems Engineering	WR	NAWCAD, Pax River, MD	1.989	1.844	11/04	1.442	11/05				5.275	
Systems Engineering	C/CR	ARINC, California, MD	4.701	1.755	12/04						6.456	6.456
System Demonstration	WR	NAWCAD, Pax River, MD	1.744	1.152	11/04	0.767	11/05				3.663	
System Dev & Demonstration Phase											0.000	
Primary Hdw - Common Ship	C/CR	TBD				6.236	05/06	9.954	12/06	Continuing	Continuing	
Primary Hdw - GPS Recvr/Antenna	C/CR	TBD				2.351	05/06	3.067	12/06	Continuing	Continuing	
Primary Hdw - EGI **	C/CR	TBD				1.233	05/06	1.899	12/06	Continuing	Continuing	
Primary Hdw - Data Link ***	SS/CR	Rockwell, Cedar Rapids, IA						5.370	12/06		5.370	13.697
Systems Engineering/Test	C/CR	TBD				10.264	05/06	13.083	12/06	Continuing	Continuing	
Systems Engineering/Test	WR	NAWCAD, Pax River, MD						2.846	12/06	Continuing	Continuing	
Ship Integration	C/CR	TBD				1.244	11/05	5.621	11/06	Continuing	Continuing	
Subtotal Product Development			42.832	28.370		35.252		41.840		Continuing	Continuing	
Remarks: * Previously shown as "Primary Hdw - Common System". ** Embedded Global Positioning System/Inertial Navigation System. *** Continuous contractual effort from TD through SDD phase. See total Target Value of Contract under SDD entry.												

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 6 of 10)

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDTE&E, N / BA-4			0603860N, Joint Precision Approach and Landing System				2329, Joint Precision Approach and Landing System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Integrated Logistics Support	WR	NAWCAD, Pax River, MD	0.594	0.964	11/04	0.825	11/05	0.885	11/06	Continuing	Continuing		
Cost Analysis/EVM	WR	NAWCAD, Pax River, MD	0.613	0.502	11/04	0.537	11/05	0.442	11/06	Continuing	Continuing		
Integrated Logistics Support	C/CR	TBD				0.128	05/06			Continuing	Continuing		
Technical Data	C/CR	TBD				0.486	05/06	0.694	12/06	Continuing	Continuing		
Milestone B Documentation	WR	NAWCAD, Pax River, MD		1.910	11/04	0.449	11/05				2.359		
Studies and Analyses	C/IDIQ	IRM Ltd., Lexington Park, MD	0.060	0.180	12/04	0.150	12/05	0.160	12/06	Continuing	Continuing		
Curriculum Development	C/T&M	IDSi, Indian Head, MD	0.070	0.050	12/04	0.050	12/05	0.050	12/06	Continuing	Continuing		
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Subtotal Support			1.337	3.606		2.625		2.231		Continuing	Continuing		
Remarks:													

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 7 of 10)

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Exhibit R-3 Cost Analysis (page 2)									DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE, N / BA-4			0603860N, Joint Precision Approach and Landing System			2329, Joint Precision Approach and Landing System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD, Pax River, MD									0.000	
Operational Test & Evaluation	WR	OPTEVFOR, Norfolk, VA				0.100	11/05	0.167	11/06	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.100		0.167		Continuing	Continuing	
Remarks:												
Logistics Management Support	C/IDIQ	NTA, Lexington Park, MD	0.156	0.055	12/04	0.055	12/05	0.055	12/06	Continuing	Continuing	
Travel	N/A	NAVAIR, Pax River, MD	0.075	0.046	11/04	0.047	11/05	0.048	11/06	Continuing	Continuing	
Government Engineering Support *	WR	NAWCAD, Pax River, MD				1.181	12/05				1.181	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.231	0.101		1.283		0.103		Continuing	Continuing	
Remarks: * Engineering support for SDD contract source selection.												
Total Cost			44.400	32.077		39.260		44.341		Continuing	Continuing	
Remarks:												

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 8 of 10)

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EXHIBIT R4, Schedule Profile																								DATE:																	
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME																					
RDT&E, N / BA-4										0603860N, Joint Precision Approach and Landing System										2329, Joint Precision Approach and Landing System																					
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011												
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4									
Acquisition Milestones						SDD RFP	Release			MS B			PDR			CDR		TRR				TRR					MS C														
JPALS System Development			JPALS TECHNOLOGY DEVELOPMENT										JPALS SYSTEM DEVELOPMENT AND DEMONSTRATION																												
Contract Award/Event									SDD Contract Award																																
Test & Evaluation Milestones																		1	1	2			4																		
Test Article Delivery																																									
Demonstration/Integration			Demo				Demo							Lab Integration						Ship Int.									Aircraft Integration												
Developmental Test																		DT-I				DT-II																			
Operational Test																										OA															
Production Milestones																																									
LRIP Award																													1												
Deliveries (Start in 2012)																																									

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Exhibit R-2, RD TEN Budget Item Justification
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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603879N SINGLE INT AIR PICTURE (SIAP) SYS ENG			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	14.335	19.957	36.721	50.837	26.449	1.156	1.340	1.528
Project 3031/Single Int. Air Picture (SIAP)	14.335	19.957	36.721	50.837	26.449	1.156	1.340	1.528

PE transferred from SIAP System Engineering Task Force to the Navy starting in FY2004

A. (U) Mission Description and Budget Item Justification

Single Integrated Air Picture (SIAP) is the product of fused, near-real-time and real-time data from multiple sensors to allow development of common, continuous, and unambiguous tracks of all airborne objects in the surveillance area. All airborne objects must be detected, tracked, and reported. Each object must have one and only one track identifier and associated characteristics to be incorporated into SIAP. Current systems do not provide this capability. The SIAP System Engineering (SE) Task Force, now known as the Joint SIAP System Engineering Organization (JSSEO), was approved by the Joint Requirements Oversight Council (JROC) in March 2000, and chartered in Oct 2000 by the Under Secretary of Defense (A&T) to perform "the system engineering needed to fix problems in the existing Joint Data Network (JDN) and to guide development toward a future SIAP capability."

This Joint engineering organization will develop tools/processes and perform system engineering that will identify cost effective fixes to US/coalition tactical data link systems. The resulting fixes will be addressed in incremental blocks designed to improve the SIAP. Each block will identify specific changes to be implemented in tactical systems to improve integrated air and missile defense/theater air warfare capabilities.

* Block 0 addressed four joint warfighting shortfalls selected for their impact on the Joint Data Network (JDN), their applicability across the Services, and the engineering maturity reflected by interface change proposals already on-record. The Block 0 issues addressed were: common correlation/decorrelation, formation tracking/correlation, identification taxonomy and symbology, and an identification (ID) conflict resolution matrix. These fixes will reduce operator confusion and lay the groundwork for subsequent JDN improvements.

* Block 1 is addressing a set of JDN deficiencies approved by United States Joint Forces Command to provide warfighter benefits which can be implemented in the near to mid-term. The issues being addressed are: further reduction of dual tracks, improved combat ID capability, improved data sharing (network capacity), and improved air picture for theater ballistic missile defense performance. Improvements addressing these issues will be implemented via integration of the Integrated Architecture Behavior Model (IABM) into the various Combat Systems being used or being developed by the Services including the Navy.

This PE provides the resources for the Navy system engineering support to the Joint effort to develop SIAP capability and system engineering support to Platform Programs of Record for integration of the Joint solution.

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 9)

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EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603879N SINGLE INT. AIR PICTURE (SIAP) SYS ENG				PROJECT NUMBER AND NAME Project 3031/Single Int. Air Picture (SIAP)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	14.335	19.957	36.721	50.837	26.449	1.156	1.340	1.528
RDT&E Articles Qty	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Navy mission is to support the design, development and testing, working with the Joint SIAP System Engineering Organization (JSSEO), of a SIAP capability which satisfies requirements mandated by the Global Information Grid (GIG), Theater Air and Missile Defense (TAMD) and Combat Identification (CID) Capstone Requirements Documents (CRD). The SIAP capability will provide the Navy warfighter with the ability to better understand the battlespace and employ weapons to their designed capabilities. The SIAP will support the spectrum of offensive and defensive operations by US, allied, and coalition partners in the airspace within a theater of operations (e.g., attack operations, suppression of enemy air defenses, air and missile defense, intelligence preparation of the battlefield). The SIAP is accomplished through a combination of materiel and nonmateriel improvements. This effort through the application of disciplined System Engineering processes, policies, products and services will enable the delivery of an integrated, interoperable, reliable, and maintainable Joint SIAP capability in Navy warfare systems/platforms, in support of Joint and Navy Mission Capabilities.

As discussed, SIAP capability is being introduced through a series of Block improvements targeted at eliminating specific interoperability issues, providing C4I enhancements, and delivering an executable integrated architecture. The engineering specifications and requirements developed by each Block system engineering effort will be incorporated into the successive versions of the Joint IABM developed within a two year spiral capability improvement process. The delivered IABM will be used to develop the successive versions of the Open Architecture Track Manager (OATM) and as a standard against which to assess performance of the Navy combat systems in terms of Joint Force interoperability. The Navy is investing in the Open Architecture construct for many reasons, one of which is to create the combat system computing architecture which will permit the most rapid and least expensive implementation of the IABM based OATM. To that end, this effort is also providing some resources to the Open Architecture system engineering process.

The OATM, once implemented by means of a platform specific application in the Navy combat systems, will reduce the risk of fratricide to US/coalition forces caused by incorrect correlation and ID association and enable our combatant commanders to exploit the full kinematic range of our weapons through better Joint Force integration.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 4	PROGRAM ELEMENT NUMBER AND NAME 0603879N SINGLE INT AIR PICTURE (SIAP) SYS ENG	PROJECT NUMBER AND NAME Project 3031/Single Int. Air Picture (SIAP)	
B. Accomplishments/Planned Program (Cont.)			
	FY04	FY05	FY06
Navy Block Upgrade Implementation	14.335	19.957	36.721

(U) FY2004 PLAN:
 Continued development of the initial SIAP reference implementation through the development of a "platform" independent behavior model (SIAP Integrated Architecture Behavior Model or IABM) from which the "platform" specific performance model (Open Architecture Track Manager or OA TM) for each Combat System digital computing environment will be developed. Navy Program Office system engineering was required to support Combat System migration to the Navy Open Architecture construct in preparation for OA TM integration and to assure that the IABM under joint development consists of the highly reusable software and functionality required to satisfy Navy multi-mission war-fighting requirements. FY 04 Block 1 efforts were focused on development of the IABM, aligning the SIAP Integrated Architecture and Navy Open Architecture functional allocations, and design of reference algorithms for the command and control functionality of the core combat systems: AEGIS, SSDS, E-2C/CEC and DD(X). Block 0 efforts were focused on implementation of the Common Correlation/Decorrelation Algorithm in Advance Combat Direction System (ACDS) Block 0 and studies to determine the most cost effective means to implement the Common ID Taxonomy Algorithm in the F/A-18.

(U) FY2005 PLAN:
 The FY05 Block 1 effort is focused on completion of the reference algorithms for use in the IABM, completing alignment of the SIAP Integrated Architecture and Navy Open Architecture functional allocations, migration of the core combat systems from a closed to open architecture computing environment to enable integration of the JOINT IABM functionality via the OA TM, identification and correction of integration issues, and testing of the IABM software and functionality in a simulation/stimulation environment. System engineering work begins this year on development of the next IABM in the spiral development process, Configuration 2007. Block 0 efforts are focused on completing implementation of the Common Correlation Algorithm in ACDS Block 0.

(U) FY2006 PLAN:
 The FY06 effort will be focused on the IABM integration into the OA TM and platform specific implementation design, validation of the OA TM functionality, validation of the Joint Track Management functionality, testing and certification of the IABM platform specific implementation for delivery to the core combat systems for integration. In addition, system engineering will continue in support of the joint spiral development of the IABM Configuration to be delivered in FY07 and migration of the Navy combat systems to the Navy Open Architecture construct. Block 0 efforts will be focused on completing implementation of the common correlation algorithm in ACDS Block 0.

(U) FY2007 PLAN:
 The FY07 effort is focused on testing the integration of the OA TM based on IABM Configuration 2005 into the core combat systems, completion of the reference algorithms for use in IABM Configuration 2007, beginning the systems engineering effort in support of the next spiral of IABM development (Configuration 2009), completion of the core combat system migration to the Open Architecture computing environment, and testing of the Configuration 2007 software and functionality in a simulation/stimulation environment preparatory to delivery at year's end. This year the Navy Platform Specific Model will be available for testing against the Platform Independent Model. The Block 0 effort will complete implementation of the common correlation algorithm in ACDS Block 0 to this year.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																																																			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603879N SINGLE INT AIR PICTURE (SIAP) SYS ENG	PROJECT NUMBER AND NAME Project 3031/Single Int. Air Picture (SIAP)																																																				
C. PROGRAM CHANGE SUMMARY: <table style="width: 100%; margin-top: 20px;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: right;">FY2004</th> <th style="text-align: right;">FY2005</th> <th style="text-align: right;">FY2006</th> <th style="text-align: right;">FY2007</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget: (FY 05 Pres Controls)</td> <td style="text-align: right;">15.053</td> <td style="text-align: right;">20.252</td> <td style="text-align: right;">36.958</td> <td style="text-align: right;">50.844</td> </tr> <tr> <td>Current President's Budget: (FY06 Pres Controls)</td> <td style="text-align: right;">14.335</td> <td style="text-align: right;">19.957</td> <td style="text-align: right;">36.721</td> <td style="text-align: right;">50.837</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.718</td> <td style="text-align: right; border-top: 1px solid black;">-0.295</td> <td style="text-align: right; border-top: 1px solid black;">-0.237</td> <td style="text-align: right; border-top: 1px solid black;">-0.007</td> </tr> <tr> <td>Summary of Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Management Reform/Reprogramming</td> <td style="text-align: right;">-0.552</td> <td style="text-align: right;">-0.295</td> <td style="text-align: right;">-0.237</td> <td style="text-align: right;">-0.007</td> </tr> <tr> <td> BTR/SBIR</td> <td style="text-align: right;">-0.038</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Economic Assumptions</td> <td style="text-align: right;">-0.128</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">-0.718</td> <td style="text-align: right; border-top: 1px solid black;">-0.295</td> <td style="text-align: right; border-top: 1px solid black;">-0.237</td> <td style="text-align: right; border-top: 1px solid black;">-0.007</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule: See Attached R4.</p> <p style="margin-top: 40px;">Technical: Not Applicable</p>						FY2004	FY2005	FY2006	FY2007	Funding:					Previous President's Budget: (FY 05 Pres Controls)	15.053	20.252	36.958	50.844	Current President's Budget: (FY06 Pres Controls)	14.335	19.957	36.721	50.837	Total Adjustments	-0.718	-0.295	-0.237	-0.007	Summary of Adjustments					Management Reform/Reprogramming	-0.552	-0.295	-0.237	-0.007	BTR/SBIR	-0.038				Economic Assumptions	-0.128				Subtotal	-0.718	-0.295	-0.237	-0.007
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EXHIBIT R-2a, RDT&E Project Justification						DATE: FEBRUARY 2005																																																																																												
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<p>D. OTHER PROGRAM FUNDING SUMMARY: Block 1</p> <p><u>Line Item No. & Name</u></p> <p>Related RDT&E: Computer programs developed under these programs are tested in their integrated configuration. Negative numbers represent amount of funds consolidated into SIAP SE Navy PE.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>FY04</th> <th>FY05</th> <th>FY06</th> <th>FY07</th> <th>FY08</th> <th>FY09</th> <th>FY10</th> <th>FY11</th> </tr> </thead> <tbody> <tr> <td>PE 0605853N S3039 (CHENG)</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>PE 0205604N X2126 (CDLMS)</td> <td>0.6</td> <td>0.5</td> <td>0.4</td> <td>0.3</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>PE 0603582N S0164(DEP)</td> <td>1.6</td> <td>-1.8</td> <td>-8.4</td> <td>-18.9</td> <td>-12.2</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>PE 0604307N K1447 (AEGIS)</td> <td>0.0</td> <td>-1.1</td> <td>-1.3</td> <td>-1.1</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>PE 0604755N K2178 (SSDS)</td> <td>1.6</td> <td>-1.6</td> <td>-8.0</td> <td>-18.5</td> <td>-11.8</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>PE 0604518N K1604 (ACDS)</td> <td>3.4</td> <td>-0.2</td> <td>-0.2</td> <td>-0.1</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>PE 0603658N K2039 (CEC)</td> <td>1.6</td> <td>-8.2</td> <td>-18.7</td> <td>-12.0</td> <td>-1.6</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>PE 0204136N E1662 (F/A 18)</td> <td>0.4</td> <td>0.9</td> <td>1.5</td> <td>1.7</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>PE 0204152N E0463 (E2C)</td> <td>2.1</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> </tbody> </table> <p>E. Acquisition Strategy: Not Applicable</p> <p>F. MAJOR PERFORMERS:</p> <p>Naval Surface Warfare Center, Dahlgren VA - Surface Combatant System Engineering and Computer Integration Naval Air Warfare Center Aircraft Division, Patuxent River MD - Aircraft Platform Integration and System Engineering Space and Warfare Systems Command, San Diego CA - System Communication</p>										FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	PE 0605853N S3039 (CHENG)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	PE 0205604N X2126 (CDLMS)	0.6	0.5	0.4	0.3	0.0	0.0	0.0	0.0	PE 0603582N S0164(DEP)	1.6	-1.8	-8.4	-18.9	-12.2	0.0	0.0	0.0	PE 0604307N K1447 (AEGIS)	0.0	-1.1	-1.3	-1.1	0.0	0.0	0.0	0.0	PE 0604755N K2178 (SSDS)	1.6	-1.6	-8.0	-18.5	-11.8	0.0	0.0	0.0	PE 0604518N K1604 (ACDS)	3.4	-0.2	-0.2	-0.1	0.0	0.0	0.0	0.0	PE 0603658N K2039 (CEC)	1.6	-8.2	-18.7	-12.0	-1.6	0.0	0.0	0.0	PE 0204136N E1662 (F/A 18)	0.4	0.9	1.5	1.7	0.0	0.0	0.0	0.0	PE 0204152N E0463 (E2C)	2.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0
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Exhibit R-3 Cost Analysis (page 1)								DATE: FEBRUARY 2005						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER								
RDT&E, N/BA-4			0603879N			3031 - SINGLE INTEGRATED AIR PICTURE SYS ENG TASK FORCE								
Cost Categories (Tailor to WBS, or System/Item Req't)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	*FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 0 (JSSEO)	MIPR	Army PEO/AMD, Huntsville AL	0.879	0.000	VAR	0.000	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	1.129	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	Air Force ESC, Boston MA	1.329	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	0.621	0.000		0.000		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	5.155	0.000		0.000		0.000		0.000		0.000	0.000	
Subtotal Block 0			10.308	0.000		0.000		0.000		0.000				
Block 1 (JSSEO)	MIPR	Army PEO/AMD, Huntsville AL	15.340	0.000	VAR	0.000	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	16.085	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	AF ESC/DI, Boston MA	17.114	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	7.045	0.000		0.000		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	20.699	0.000		0.000		0.000		0.000		0.000	0.000	
Subtotal Block 1			76.282	0.000		0.000		0.000		0.000		0.000	0.000	
Block 2 (JSSEO)	MIPR	Army PEO/AMD, Huntsville AL	2.060	0.000	VAR	0.000	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	2.266	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	AF ESC/DI, Boston MA	2.369	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	1.030	0.000		0.000		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	2.271	0.000		0.000		0.000		0.000		0.000	0.000	
Subtotal Block 2			9.996	0.000		0.000		0.000		0.000				
Architecture (JSSEO)	MIPR	Army PEO/AMD, Huntsville AL	1.536	0.000	VAR	0.000	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	1.625	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	AF ESC/DI, Boston MA	1.684	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	0.786	0.000		0.000		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	2.364	0.000		0.000		0.000		0.000		0.000	0.000	
Subtotal Architecture			7.995	0.000		0.000		0.000		0.000				
System Engineering Tools & Analysis (JSSEO)	MIPR	Army PEO/AMD, Huntsville AL	0.988	0.000	VAR	0.000	VAR	0.000	VAR	0.000	VAR	0.000	0.000	
	MIPR	Navy PEO/TSC, Arlington VA	0.876	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	AF ESC/DI, Boston MA	1.206	0.000		0.000		0.000		0.000		0.000	0.000	
	MIPR	Marine MARCOR, Quantico VA	0.520	0.000		0.000		0.000		0.000		0.000	0.000	
	VAR	Contract Supt, Various	1.191	0.000		0.000		0.000		0.000		0.000	0.000	
Subtotal SE Tools & Analysis			4.781	0.000		0.000		0.000		0.000		0.000		
Validation and Certification	WR	Navy DEP/JDEP, NSWC-DD, Dahlgren VA	7.000	0.000		0.000		0.000		0.000				
BLOCK 1 (NAVY)					VAR			VAR		VAR		VAR		CONT
	VAR	NAVSEA, Washington DC		1.174		0.720		0.979		1.666		CONT	CONT	
	VAR	PEO IWS, Washington, DC		4.476		11.600		21.804		29.997		CONT	CONT	
	WX/VAR	NAVAIR, Pax River, MD		4.757		5.079		9.270		12.752		CONT	CONT	
	PD/FAD	SPAWAR, San Diego, CA		3.428		2.265		4.134		5.687		CONT	CONT	
	PD	CHENG, Washington, DC		0.500		0.293		0.534		0.735		CONT	CONT	
Subtotal BLOCK 1			0.000	14.335		19.957		36.721		50.837		CONT	CONT	
SUBTOTAL			116.362	14.335		19.957		36.721		50.837		CONT	CONT	
Exhibit R-3 Cost Analysis (page 1)														
Remarks:														

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(Exhibit R-3, page 6 of 8)

* STARTING IN FY2004 JOINT SIAP FUNDING TRANSITION TO A US ARMY PE AND RELATED DOCUMENTATION WILL BE PROVIDED THROUGH THE US ARMY.

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 6 of 9)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NAME AND NUMBER									
RDTE&E, N/BA-4			0603879N		3031 - SINGLE INTEGRATED AIR PICTURE SYS ENG TASK FORCE									
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation														
Operational Test & Evaluation														
Tooling														
GFE														
Subtotal T&E			0.000	0.000		0.000		0.000		0.000			0.000	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support			0.975											
Travel			0.180											
Labor (Research Personnel)														
Rent/Const/Utilities/Computers														
Subtotal Management (JSSEO)			1.155	0.000		0.000		0.000		0.000		CONT	CONT	
Remarks:														
Total Cost			117.517	14.335		19.957		36.721		50.837		CONT	CONT	
Remarks:														

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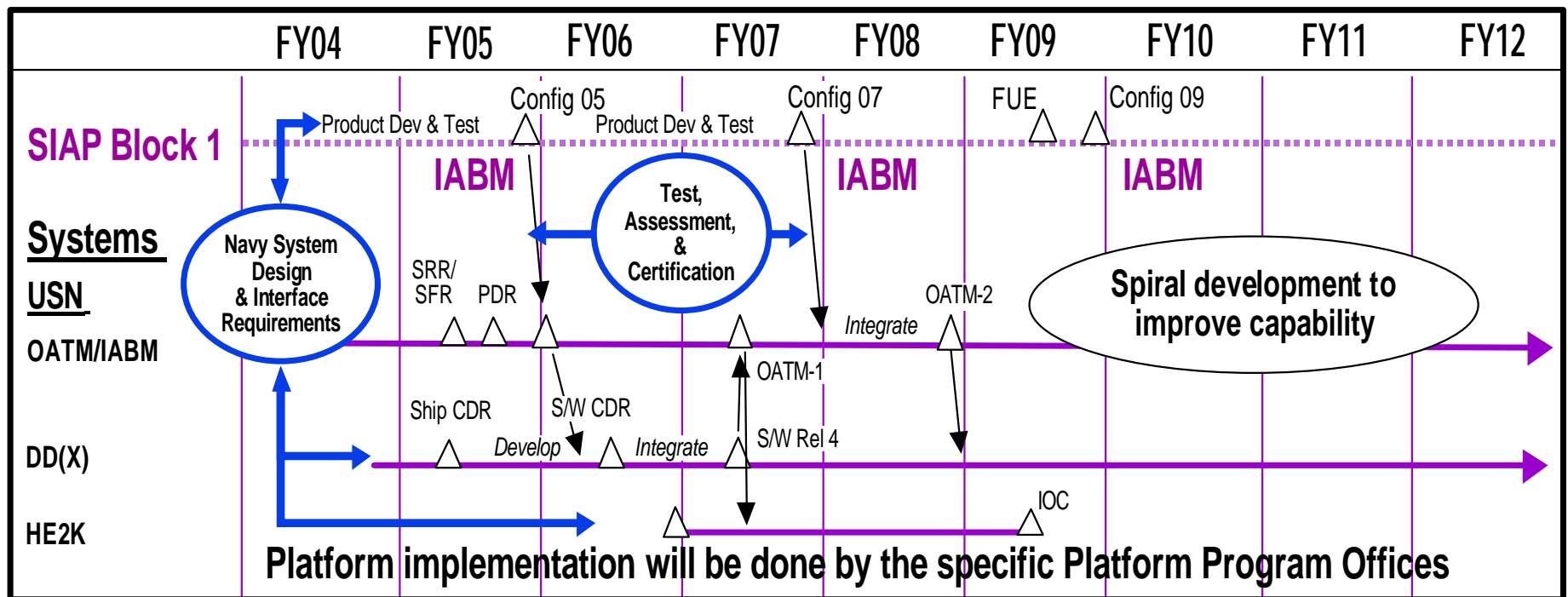
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Exhibit R-2, RDTEEN Budget Item Justification
(Exhibit R-2, page 7 of 9)

UNCLASSIFIED

EXHIBIT R4, Schedule Profile		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603879N SINGLE INTEGRATED AIR PICTURE (SIAP) SYS ENG	PROJECT NUMBER AND NAME Project 3031/Single Int. Air Picture (SIAP)

Navy SIAP System Engineering Schedule



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Exhibit R-4 RDTEEN, Schedule Detail

(Exhibit R-4, page 8 of 8)

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Exhibit R-2, RDTEEN Budget Item Justification

(Exhibit R-2, page 8 of 9)

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R-1 SHOPPING LIST - Item No.

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 9 of 9)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION , NAVY/ BA-4					R-1 ITEM NOMENCLATURE 0603889N/Counterdrug RDT&E Projects			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	12.079	3.756	0.000	0.000	0.000	0.000	0.000	0.000
2219/Counterdrug RDT&E Projects	12.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9543/Research of frequency selective surfaces and the	0.000	1.775	0.000	0.000	0.000	0.000	0.000	0.000
9545/Volume Point Sensors	0.000	1.981	0.000	0.000	0.000	0.000	0.000	0.000
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Counterdrug RDTE Projects Program mission is to develop and deploy technology that disrupts, deters, and denies the flow of drugs, people, information, money and weapons related to narcoterrorism.</p> <p>The Research of Frequency Selective Surfaces and Thermal Signatures project is a Congressional plus up. Microantenna-array technology will be developed to enhance, camouflage, or conceal the infrared (IR) signatures of controlled assets. The overall project objective is to investigate the utility of frequency selective surfaces (FSS) and thin-film materials as tags that can be viewed using airborne or national sensors. Arrays of infrared microantennas will be applied to the exterior surface of a controlled item to alter the object's emission in the portion of the IR band commonly used by thermal imagers. The microantenna array will be tailored to control the emitted infrared spectral pattern in order to disguise, conceal, or tag the asset of interest. The tag could also be remotely monitored using available thermal imaging technology. Key features include the ability to discriminate friend-from-foe and the tailoring of the thermal profile to enhance long-distance stand-off monitoring.</p> <p>The Volume Point Sensors project is a Congressional plus up. It is to demonstrate, based on recent research, that the existing or legacy electrical power lines can be used to charge and maintain all plug-in Chemical Biological Nuclear (CBN) point sensors as well as send sensor data and communications to in-line hubs, with out multiplexing coding and switching infrastructure cost. This system will provide the ability to detect counter drug ops and x-mit info over power lines and power grids.</p>								

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 1)

CLASSIFICATION:

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A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

TADIRCM is a Tactical Aircraft Directed InfraRed Countermeasure system. TADIRCM provides the warfighter with protection against surface and air to air missiles. This project looks at the infrared (IR) MANPAD & surface to air (SAM) threat. FY 2004 Congressional language directed the TADIRCM project to perform an initial suitability assessment for tactical fighters through an Early Operational Assessment (EOA) and provide a report back to Congress within 60 days of completion. FY 2005 Congressional language provided funding for the completion of that project into flight test. The completion is scheduled for 2006.

Assault Directed Infrared Countermeasure System Development and Demonstration (DIRCM SDD) designed for Rotary wing aircraft is scheduled to start in late 2006. The Assault DIRCM will leverage work accomplished during the EOA with investment by the Army to develop and field a DIRCM system for Naval assault aircraft by 2011. Assault DIRCM is an advanced capability against the IR SAM threat. Recent losses to assault aircraft as a result of IR SAMs requires an advanced DIRCM solution.

The TADIRCM Strike DIRCM SDD for fast jets commences in 2008. Strike DIRCM is a podded DIRCM system suited for carrier environments. Strike DIRCM is needed for protection against Surface to air and air to air IR threats. Strike DIRCM regains airspace below 20K feet. DIRCM neutralizes the IR threat.

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 1 of 10)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0604272N TADIRCM			PROJECT NUMBER AND NAME 3040 TADIRCM			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	11.575	7.133	9.956	22.003	47.008	64.984	40.066	44.000
RDT&E Articles Qty	1							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

TADIRCM is a Tactical Aircraft Directed InfraRed Countermeasure system. TADIRCM provides the warfighter with protection against surface and air to air missiles. This project looks at the infrared (IR) MANPAD & surface to air (SAM) threat. FY 2004 Congressional language directed the TADIRCM project to perform an initial suitability assessment for tactical fighters through an Early Operational Assessment (EOA) and provide a report back to Congress within 60 days of completion. FY 2005 Congressional language provided funding for the completion of that project into flight test. The completion is scheduled for 2006.

Assault Directed Infrared Countermeasure System Development and Demonstration (DIRCM SDD) designed for Rotary wing aircraft is scheduled to start in late 2006. The Assault DIRCM will leverage work accomplished during the EOA with investment by the Army to develop and field a DIRCM system for Naval assault aircraft by 2011. Assault DIRCM is an advanced capability against the IR SAM threat. Recent losses to assault aircraft as a result of IR SAMs requires an advanced DIRCM solution.

The TADIRCM Strike DIRCM SDD for fast jets commences in 2008. Strike DIRCM is a podded DIRCM system suited for carrier environments. Strike DIRCM is needed for protection against Surface to air and air to air IR threats. Strike DIRCM regains airspace below 20K feet. DIRCM neutralizes the IR threat.

R-1 SHOPPING LIST - Item No. 80

Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 2 of 10)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604272N TADIRCM	PROJECT NUMBER AND NAME 3040 TADIRCM																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">11.575</td><td style="text-align: center;">7.133</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">1 partially populated pod</td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	11.575	7.133			RDT&E Articles Quantity	1 partially populated pod			
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	11.575	7.133																	
RDT&E Articles Quantity	1 partially populated pod																		
<div style="border: 1px solid black; padding: 5px; min-height: 80px;">The objective of this Tactical Aircraft Directed InfraRed Countermeasure (TADIRCM) Initial Suitability project is to take science and technology components and configure into an airborne pod and perform limited effectiveness testing. The output will be test articles consisting of a 2-color missile warning sensor or sensors to detect and declare the threat; an off-the-shelf Advanced Technology Demonstration laser coupled to a new miniature pointer/tracker which takes the declared threat from the missile warning and passes to a fine track sensor in the pointer/tracker, subsequently slewing and applying laser energy to counter the threat. All this will be contained within a newly designed wing-mounted pod. With the FY 2005 Congressional add, the POD will be flight tested to provide an assessment of the advanced technology in simulated operational flight test conditions.</div>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			
<div style="border: 1px solid black; height: 80px;"></div>																			

R-1 SHOPPING LIST - Item No. 80

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604272N TADIRCM	PROJECT NUMBER AND NAME 3040 TADIRCM		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget:	11.866	0.000	0.000	0.000
Current BES/President's Budget	11.575	7.133	9.956	22.003
Total Adjustments	-0.291	7.133	9.956	22.003
Summary of Adjustments				
Congressional program reductions		-0.065		
Congressional undistributed reductions				
Congressional rescissions				
SBIR/STTR Transfer	-0.280			
Other adjustments		-0.002	9.859	21.686
Economic Assumptions	-0.011		0.097	0.317
Reprogrammings				
Congressional increases		7.200		
Subtotal	-0.291	7.133	9.956	22.003

Schedule:

Schedule changes reflect program restructure due to receipt of FY2005 Congressional Add.

Technical: Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT NUMBER AND NAME 0604272N TADIRCM			PROJECT NUMBER AND NAME 3040 TADIRCM	

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
APN-5 Line 52 Common ECM (OSIP XX-11)								37.000		

E. ACQUISITION STRATEGY:

The management and acquisition strategy for the Tactical Aircraft Directed InfraRed Countermeasure (TADIRCM) Initial Suitability assessment entails a competitive phased approach to reduce risk to cost and schedule through viable competition. The project will initially award two contracts for pointer/tracker/laser development, one contract for pod development, and one contract for missile warning sensors. The Naval Research Lab will be the technical lead in integration of these pointer/trackers, lasers, and sensors within the pod utilizing government furnished processors and ancillary data recording equipment. There will be a down select to one pointer/tracker/laser contract at the fabrication point to ensure the project does not exceed budget and can be executed as described here.

The Assault Directed Infrared Countermeasure (DIRCM) program will be a joint Army/Navy program whereas the Army will be the lead. The Army and Navy will pursue a common solution on a joint set of requirements. The approach will be to upgrade the DIRCM capability that was initially developed by the Army and develop an advanced DIRCM solution to address the more advanced IR SAMs.

The TADIRCM Strike DIRCM program will maximize use of technology developed under the Assault DIRCM program. The program will accomplish component redesign/repackaging necessary to survive the tactical aircraft environment. The program will conduct test to verify system performance meets the tactical environment.

R-1 SHOPPING LIST - Item No. 80

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0604272N TADIRCM			3040 TADIRCM						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	Northrop Grumman, IL	1.000	1.000	04/05						2.000	2.000
Primary Hardware Development	C/CPFF	BAE, NH	1.000	1.000	04/05						2.000	2.000
Primary Hardware Development	C/CPFF	Raytheon, IN	1.500	1.500	05/05						3.000	3.000
Primary Hardware Development	C/CPFF	DRS, TX	0.600								0.600	0.600
Primary Hardware Development	C/CPFF	Raven, Arlington VA	0.800	0.380	03/05						1.180	1.180
Primary Hardware Development	C/CPFF	ATK, Tampa FL	0.200								0.200	0.200
Primary Hardware Development	C/CPFF	Assault Prime Contract TBD				5.056	07/06	18.853	03/07	46.650	70.559	70.559
Primary Hardware Development	C/CPFF	Fixed Wing Contract TBD								129.400	129.400	129.400
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering			0.678								0.678	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees			0.100	0.100	Various						0.200	
Primary Hardware Development	C/CPFF	Raytheon, Tucson	2.300	2.200	06/05						4.500	4.500
Subtotal Product Development			8.178	6.180		5.056		18.853		176.050	214.317	

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 6 of 10)

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February 2005

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 10)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 3)										DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-4			PROGRAM ELEMENT 0604272N TADIRCM			PROJECT NUMBER AND NAME 3040 TADIRCM						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCAD, MD	0.365	0.078	03/05	0.200	06/06	0.250	03/07	5.100	5.993	
Operational Test & Evaluation	WX	OPTEVFOR, VA	0.015	0.135	03/05					7.700	7.850	
Live Fire Test & Evaluation	WX	NAWCWD, China Lake, CA				2.900	06/06	1.250	06/07	21.200	25.350	
Test Assets	WX	NAWCWD, China Lake, CA						0.250	06/07	6.925	7.175	
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.380	0.213		3.100		1.750		40.925	46.368	
Remarks:												
Contractor Engineering Support	C/CPFF	TEKLA, VA	1.950			0.400	06/06	0.200	06/07	3.200	5.750	5.750
Government Engineering Support	WX	NRL, Washington DC	0.215			0.400	06/06	0.200	06/07	3.300	4.115	
Program Management Support	WX	NAWCAD, MD	0.530	0.215	11/04	0.300	06/06	0.300	06/07	6.800	8.145	
Travel	WX	NAWCAD, MD	0.032	0.025	11/04						0.057	
Transportation												
SBIR Assessment											0.000	
Subtotal Management			2.727	0.240		1.100		0.700		13.300	18.067	
Total Cost			11.575	7.133		9.956		22.003		246.225	296.892	
Remarks:												

R-1 SHOPPING LIST - Item No. 80

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 8 of 10)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-4												0604272N TADIRCM												3040 TADIRCM											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
EOA Study Contract Awards (BAE and/or NG)			■																																
EOA Contract			▲																																
Pod Contract			■	■	■	■	■																												
MWS Contract			■	■	■	■	■																												
Software Development and Test		■	■	■	■	■	■	■																											
Flight Test										■	■																								
EOA Report												△																							
Assault DIRCM Contracts											△																								
PDR														△																					
CDR															△				△																
DT/OT																			△	■	■	■	■	■	■	■	■	■							
Strike DIRCM Contract Award																		△																	
PDR																				△															
CDR																					△														

R-1 SHOPPING LIST - Item No. 80

* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4, Schedule Profile
(Exhibit R-4, page 9 of 10)

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CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 80

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 10 of 10)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							January 2005	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE			
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					PE 0604327N-Hard & Deeply Buried Target			
					Defeat System Program			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0
J9611- Advanced Conventional Strike Capability		9.9						
Demonstration								

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The efforts herein support the ability to build an affordable intermediate range ballistic missile from an underwater environment. Project J9611 supports an Advanced Strike Capability Demonstration to be contracted in FY 2005, which will demonstrate the feasibility of producing an intermediate size low-cost rocket motor set.

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: January 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4	R-1 ITEM NOMENCLATURE PE 0604327N- Hard & Deeply Buried Target Defeat System Program	

B. (U) Program Change Summary:

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY2006</u>	<u>FY 2007</u>
Previous President's Budget (FY 2005 President's Controls)	0	0	0	0
Current President's Budget	0	9.9	0	0
Total Adjustments:	0	+9.9	0	0

Summary of Adjustments:

FY 2005 Congressional Plus-up	+9.9
-------------------------------	------

C. (U) Other Program Funding Summary: See enclosed R-2a for project data.

D. (U) Acquisition Strategy: See enclosed R-2a for project data.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: January 2005		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4						PROJECT NUMBER AND NAME Advanced Conventional Strike Capability J9611		

COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost J9611Advanced Conventional Strike Capability								
	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0
RDT&E Articles Qty								

A. (U) MISSION DESCRIPTION AND BUDGET PROJECT JUSTIFICATION:

This project supports an Advanced Strike Capability Demonstration to be contracted in FY 2005, which will demonstrate the feasibility of producing an intermediate size low-cost rocket motor set. Rocket motors of these sizes (30-38 inches in diameter) could be utilized to provide intermediate range missile (IRM) capability for the SSGN (up to three per tube). The project will conduct a competition leading to an award to procure first and second stage motor(s), each with nozzles and thrust vector controls such that during a static firing of the motors a representative flight profile can be simulated and motor performance data gathered for future planning and refinement.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: January 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4	PROJECT NUMBER AND NAME J9611 Advanced Conventional Strike	
Capability Demonstration		

B. (U) Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Advanced Conventional Strike Demo	0.0	9.9	0.0	0.0
RDT&E Articles Quantity				

(U) FY 2004 PLAN N/A

(U) FY 2005 PLAN

- (U) (\$9.9) Initiate Advanced Conventional Strike Capability efforts. Full obligation is projected by the 3rd quarter of the first year.

FY 2005 efforts include:

- (U) Develop program plan.
- (U) Complete affordability missile trade study
- (U) Conduct rocket motor ground tests.
- (U) Complete rocket motor performance assessment.

(U) FY 2006 PLAN N/A

(U) FY 2007 PLAN N/A

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: January 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4	PROJECT NUMBER AND NAME J9611 Advanced Conventional Strike	

Capability Demonstration

C. (U) Other Program Funding Summary: (Dollars in Thousands)

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>Total Complete</u>	<u>Total Cost</u>
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

D. (U) Acquisition Strategy:

Full and Open Competition

E. (U) Major Performers:

- TBD- Open competition will be initiated
- APL

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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: January 2005						
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N BA-4				PE 0604327N Hard & Deeply Buried Target Defeat System				J9611 Advanced Conventional Strike Capability Demonstration						

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support & Management														
Conventional Strike	TBD	TBD			06-05	9.6						Cont.	Cont.	TBD
Conventional Strike	PD	APL			06-05	0.3						Cont.	Cont.	TBD
Subtotal Product Development			0.0	0.0		9.9		0.0		0.0		Cont.	Cont.	TBD

Remarks:

Total Cost			0.0	0.0		9.9		0.0		0.0		Cont.	Cont.	

Remarks:

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

COST: (Dollars in Thousands)

<u>Project Name and Title</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
Total PE Cost	\$36.614	\$25.602	\$44.469	\$49.412	\$54.430	\$60.937	\$71.501	\$71.898
2357 Maritime Battle Center	19.437	14.378	32.519	36.074	40.633	43.821	57.024	57.081
9364 Advanced Wireless Network	3.363	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0798 OTH (Over the Horizon) Targeting	1.566	1.692	1.620	2.007	2.095	2.148	2.209	2.267
2144 SEW Engineering	9.496	9.532	10.330	11.331	11.702	11.968	12.268	12.550
9365 Coalition Warfare Program	2.752							
Quantity of RDT&E Articles								

- A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:** This Program Element (PE) contains three projects: Maritime Battle Center (MBC), Over-the-Horizon Targeting (OTH-T), and Space and Electronic Warfare (SEW) Engineering. The projects are systems engineering non-acquisition programs with the objectives of developing, testing, and validating Naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures to support naval missions in Joint and Coalition Theater. The mission of this PE is carried out by multiple tasks that are used to ensure Naval C4ISR Command and Control Warfare (C2W) components of SEW are effectively integrated into the C4ISR architectures. Additionally the program ensures that (1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the Naval C4ISR architecture as related to the objectives of National Defense Strategy and evolving joint visions and direction, such as Joint Vision 2020 (JV 2020), "Copernicus...C4ISR for the 21st Century," "Forward...From the Sea," C4I For the Warrior, and the Defense Science Board Summer Study Task Force on Information Architecture for the Battlefield and are guided by Commander in Chief (CINC) requirements; and (2) that SEW systems and

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

systems integration effort involves leading-edge technology transfer of information processing technologies primarily through integration of government and commercial off-the-shelf (GOTS/COTS) products to enhance the Navy's operational capability, interoperability, flexible reconfiguration, as well as reduce costs; and (3) that SEW systems integration efforts support Expeditionary C5 Grid (EC5G) to provide the foundation for FORCEnet and the Navy's contribution to the Global Information Grid (GIG). The MBC is a distributed organization focusing on experimentation concept development and analysis tasks are coordinated by the Navy Warfare Development Command (NWDC). The MBC will also act as the Navy representative to the Joint Battle Center and the Battle Labs of other services.

PROGRAM CHANGE SUMMARY:

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
FY 2005 President's Budget Submission	37,172	25,943	28,025	32,438
Cong Rescissions/Adjustments/Undist. Reductions	0	-336	0	0
Contracting/Management Support Adjustments	0	0	-420	-485
Execution Adjustments	-261	0	-1,400	0
Federal Technology Transfer	-8	0	0	0
Non-Pay Inflation Adjustments	-24	0	50	72
Program Adjustments	-265	-5	18,181	17,208
Rate Adjustments	0	0	33	179
FY 2006/2007 President's Budget Submission	36,614	25,602	44,469	49,412

PROGRAM CHANGE SUMMARY EXPLANATION:

Technical: Not applicable.

Schedule: Not applicable.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

COST: (Dollars in Thousands)

Project Number & Title	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
2357 MARITIME BATTLE CENTER	19,437	14,378	32,519	36,074	40,633	46,821	57,024	57,081

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the MBC is to execute the Naval Warfare Innovation Process. The process takes concepts developed by the Strategic Studies Group and approved by the Chief of Naval Operations into Fleet Battle Experiments (FBE); conducts preliminary sub-scale experiments and technological demonstrations focused on the advanced engineering and operational system development of systems related to all conflict levels of Littoral Battlespace. The MBC environment is a network centric environment that links the existing "core" Naval facilities to the Marine Corps Warfighting Lab (MCWL), the Joint Battle Center/Federated Battle Lab, and technologists in industry and academia. The MBC is essential to the evolution of combat capabilities since it is the engine for validating the new network centric warfare techniques in conjunction with the Sea Based Battle Laboratories (SBBL), Science & Technology (S&T) initiatives and other initiatives that originate with the operating forces. The MBC supports the early and sustained involvement of Joint Warfighters in refining the technology to meet the tactics, techniques, and procedures needed for 2010-2020 Littoral Battlespace. The MBC will have multiple roles since it is a crosscutting organization involved in several facets of concept, platform, weapons, weapon systems and Information Technologies (IT), Information System (IS) and Information Management (IM) systems development and integration. These include collaborative planning, operational experimentation planning and execution, technology transition/acquisition support, systems engineering and integration, technology assimilation and operational demonstrations.

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Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT
PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2004	FY 2005	FY 2006	FY 2007
Fleet Battle Experiment (FME) ANALYSIS AND CORE SUPPORT	19,437	14,378	32,519	36,074

NWDC, at the direction of Commander Fleet Forces Command (CFFC), will provide the SEA TRIAL Executive Steering Group (STESG) a cross pillar consolidated experimentation plan that recommends funding specific experiments that are keyed to Fleet priorities, the Concept Development and Experimentation Plan (CD&E Plan).

FY 2004 Accomplishments:

- Completed Agent Based Computing Limited Objective Experiment (LOE)
- Completed Sea Viking 04 Advanced Warfight Experiment
- Completed Joint Force Maritime Component Commander Workshop
- Completed Joint Force Maritime Component Commander War Game
- Completed Distributed Collaborative Environment Limited Objective Series (3 events)
- Completed Medical LOE
- Completed Theater Anti-Submarine Warfare Concept of Operations (CONOPS) Development Experiment
- Completed 40+ Knot Expeditionary Maneuver Warfare CONOPS Development Experiment
- Completed Littoral Combat Ship CONOPS Development Experiment
- Completed Counter Small Boat CONOPS Development Experiment
- Participated in Silent Hammer LOE
- Participated in Dominant Undersea Warfare LOE
- Participated in Littoral Combat Ship Mission Module LOEs
- Participated in High Speed Vessel LOEs
- Participated in Undersea Warfare Wargame

FY 2005 Plans:

- Design, Plan and Execute the Maritime Command and Control LOE Series
- Design, Plan and Execute the Anti-Submarine Warfare Limited Objective Experiment

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DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

- Design, Plan and Execute the Digital Time Sensitive Strike LOE
- Develop Rail Gun Concepts of Operations for experimentation
- Design, Plan and Execute the Information Management Toolset LOE
- Design, Plan and Execute the Cross Domain Solution LOE Series
- Design, Plan and Execute the Agent Based Computing LOE
- Design, Plan and Execute the Unified Quest 05 War Game
- Continue participation in Joint Forces Command, (JFCOM) experimentation continuum
- Execute Sea Trial Experiments, War Games, and Seminars

FY 2006 Plans:

- Resume Fleet Battle Experiment Series
- Continue participation in JFCOM experimentation continuum
- Continue LOE
- Continue CONOPS Development Experiments
- Execute Sea Trial Experiments, War Games, and Seminars

FY 2007 Plans:

- Resume Fleet Battle Experiment Series
- Continue participation in JFCOM experimentation continuum
- Continue LOE
- Continue CONOPS Development Experiments
- Execute Sea Trial Experiments, War Games, and Seminars

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

Not applicable.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-3

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

Exhibit R-3 Cost Analysis (page 1)										Date: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N							PROJECT NAME AND NUMBER Maritime Battle Center 2357		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-05 Cost	FY-05 Award Date	FY-06 Cost	FY-06 Award Date	FY-07 Cost	FY-07 Award Date	Cost To Com p.	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various	97122	11900	Various	26546	Various	29001	Various	CON T	CONT	CONT
Subtotal T&E			97122	11900		26546		29001		CON T	CONT	CONT
Remarks												
Program Management	Various	Various	21618	2478	Various	5973	Various	7073	Various	CON T	CONT	CONT
Subtotal Management			21618	2478		5973		7073		CON T	CONT	CONT

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Exhibit R-3

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

Remarks											
Total Cost			118740	14378		32519		36074		CON T	CONT CONT

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Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

Project Number & Title	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
0798 Over the Horizon TARGETING	1,566	1,692	1,620	2,007	2,095	2,148	2,209	2,267

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Over the Horizon Targeting (OTH-T)/Allied Interoperability program provides a virtual, global systems integration and test facility for C4ISR technology that supports the collection, transmission, correlation, and display of track data into Common Operational and Tactical Pictures (COTP) in support of warfighting requirements. The common view of the battle space applies across the spectrum of warfare missions. However, the technology and doctrine has changed radically. The first objective of the OTH-T/Allied Interoperability program is to transition the Joint/Navy architectures and systems to state-of-the-art COTS and GOTS products that support Network Centric Warfare. The second objective is to support development, integration, and joint interoperability of all National Security System (NSS), IT, and C4I systems into warfighting capabilities. This support includes providing technical expertise afloat and ashore via a cadre of highly trained Fleet Systems Engineers in order to integrate, validate, and evaluate new OTH-T/Allied Interoperability capabilities during major Fleet exercises and demonstrations. The OTH-T/Allied Interoperability program integration and testing in support of warfighting capabilities includes joint interoperability testing for C4ISR equipment. Allied and joint interoperability is an important issue for future Naval operations, especially with the Navy initiative to expand Internet Protocol (IP) networking throughout the Fleet (IT-21 and Naval Intranet). Currently, specific solutions do not exist to solve the IP connectivity issue with Allies. Funding will allow for development of solutions for emerging Allied and joint interoperability requirements. Data throughput will need to be increased for the exchange of large size files within the limitations of high frequency (HF) medium in support of, for example, Collaboration at Sea (CAS). Funding will allow for further development of potential solutions for merging improved transmission control protocol/internet protocol (TCP/IP) capability with advance digital network systems (ADNS) and existing international standards (e.g. STANAG 5066). Funding will also allow for development of subnet relay protocols and automatic link establishment standards, which will provide for a significant improvement within, and between, battlegroups.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
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DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2004	FY 2005	FY 2006	FY 2007
ADVANCED RELAY/WIRELESS/ANTENNA TECHNOLOGIES	0	206	398	736

FY 2004 Accomplishments:

Not applicable.

FY 2005 Plans:

Secure 802.11 and related wireless networking technologies will be evaluated in FY 05 for operational use in the maritime environment. Advanced directional and phased-array antennas, including beam orientation, steering and control, will also be evaluated.

FY 2006 Plans:

Engineering development models will be evaluated in Trident Warrior 06 and 07 and in other venues of opportunity.

FY 2007 Plans:

Engineering development models will be evaluated in Trident Warrior 06 and 07 and in other venues of opportunity.

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Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

	FY 2004	FY 2005	FY 2006	FY 2007
SUBNET RELAY	664	517	358	195

FY 2004 Accomplishments:

Exploited and coordinated subnet relay protocols and multi frequency band channels to provide greater data throughput in the HF and UHF Line-of-Sight RF mediums. Exploited HF Beyond-Line-of-Sight and Extended-Line-of-Sight ground – and sky – waveforms to improve long-range tactical communications. Adapted IP Quality of Service (QOS), Voice over IP (VoIP), STANAG 5066 Edition 2 (HFIP) and IP VTC (H.323) protocols to subnet relay communications. This effort included Information Assurance (IA).

FY 2005 Plans:

Engineering development models of subnet relay communications will be evaluated during Trident Warrior 05 for FORCEnet integration.

FY 2006 Plans:

Advanced engineering development models of subnet relay that incorporate STANAG 5066 Edition 2 will be evaluated in Trident Warrior 06.

FY 2007 Plans:

Venues of opportunity will be exploited to validate and evaluate developed portions of subnet relay configurations through testing, trials, and demonstrations.

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Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

	FY 2004	FY 2005	FY 2006	FY 2007
SYSTEMS INTEGRATION & INTEROPERABILITY TESTING	420	453	405	496

FY 2004 Accomplishments:

Conducted/participated in six overall Joint/Navy systems integration and interoperability tests events including Distributed Engineering Plan (DEP) and Joint Distribution Engineering Plan (JDEP) Tests; facilitated two planning reviews for Joint Raptor Architecture Experiments (JRAE) and Trident Warrior 04; participated in Joint Users Interoperability Communications Exercise (JUICE) and other joint test events. Served as technical expert in researching the fleet's technical questions and providing information, two trouble calls per month. Provided input and risk mitigation assessment for the feasibility of C4ISR (GCCS-M 3.x & 4.x) systems interoperability in joint multi-battle group architectures to DEP and JDEP.

FY 2005 Plans:

Conduct/participate in four overall Joint/Navy integration and interoperability tests; facilitate two planning reviews for Joint Test and Evaluations; participation in Joint Users Interoperability Communications Exercise (JUICE).

FY 2006 Plans:

Conduct/participate in three overall Joint/Navy integration and interoperability tests; facilitate one planning review for Joint Test and Evaluations; participation in JUICE.

FY 2007 Plans:

Conduct/participate in six overall Joint/Navy integration and interoperability tests; facilitate two planning reviews for Joint Test and Evaluations; participation in JUICE and other joint test events.

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Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

	FY 2004	FY 2005	FY 2006	FY 2007
INTEROPERABILITY VALIDATION	144	154	138	172

FY 2004 Accomplishments:

Validated and verified the interoperability of architectures for new capabilities and supporting systems to the fleet for ten Net Ready-Key Performance Parameters (NR-KPP) Migration Plan Development Support events and one interoperability C4ISR certification.

FY 2005 Plans:

Using The Reconfigurable Land Based Test Sites (RLBTS) and Over the Horizon Targeting (OTH-T) resources to validate IT-21 and Global Information Grid (GIG) technologies prior to shipboard installation, support eight NR-KPP Migration Plan Developments and two joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems are met.

FY 2006 Plans:

Using The RLBTS and OTH-T resources to validate IT-21 and GIG technologies prior to shipboard installation, support eight NR-KPP Migration Plan Developments and two joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems are met.

FY 2007 Plans:

Using The Reconfigurable Land Based Test Sites (RLBTS) and OTH-T resources to validate IT-21 and Global Information Grid (GIG) technologies prior to shipboard installation, support ten NR-KPP Migration Plan Developments and four joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems are met.

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Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

	FY 2004	FY 2005	FY 2006	FY 2007
TESTING OTH-T SYSTEMS	338	362	321	408

FY 2004 Accomplishments:

Conducted six developmental, integration, and certification tests, in accordance with OPNAVINST 9410.5, of Over-The-Horizon Targeting and Combat systems. Provided five final evaluations/certifications (IATO/ATO recommendations) letters for systems including Advanced Tomahawk Weapons Control System, Tactical Tomahawk Weapons Control System, Global Command & Control Systems-Maritime (ATWCS, TTWCS, GCCS-M 3.x, GCCS-M 4.x, and OASIS). Conducted three integration test events for GCCS-M4x/COE/COE-M and CAS (Collaboration at Sea).

FY 2005 Plans:

Conduct five developmental, integration, and certification tests, in accordance with OPNAVINST 9410.5, of Over-The-Horizon Targeting and Combat systems. Conduct three developmental and integration test events for GCCS-M4x/COE/COE-M/CAS/ATWCS/TTWCS. Testing will also address issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems.

FY 2006 Plans:

Conduct five developmental, integration, and certification tests, in accordance with OPNAVINST 9410.5, of Over-The-Horizon Targeting and Combat systems with tactical data exchanged over Common Operational Picture (COP) Synchronization Tools (CST) networks and other networks; two integration test events for Joint Command and Control and Collaboration at Sea systems within the GIG. Testing will also address issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

FY 2007 Plans:

Conduct five developmental, integration, and certification tests, in accordance with OPNAVINST 9410.5, of Over-The-Horizon Targeting and combat systems with tactical data exchanged over Common Operational Picture (COP) Synchronization Tools (CST) networks and other networks; three integration test events for Joint Command and Control, Combat Decision Systems, and Collaboration at Sea systems within the GIG. Testing to also address issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems.

C. OTHER PROGRAM FUNDING SUMMARY:

RELATED RDT&E:

SEW Architecture/Engineering Support program element is related to all Naval C4I related efforts.

D. ACQUISITION STRATEGY:

Not applicable.

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Exhibit R-3

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

Exhibit R-3 Cost Analysis							Date: February 2005					
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA 04							PROJECT NAME AND NUMBER OTH Targeting 0798					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-05 Cost	FY-05 Award Date	FY-06 Cost	FY-06 Award Date	FY-07 Cost	FY-07 Award Date	CostToComp	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various	3648	206	Various	398	Various	736	Various	CONT	CONT	
Interoperability Requirements	Various	Various	3266								3266	
T & E Tools Development	Various	Various	429								429	
Systems Int. & Interop. Testing	Various	Various	1724	453	Various	405	Various	496	Various	CONT	CONT	
Interoperability Validation	Various	Various	2004	154	Various	138	Various	172	Various	CONT	CONT	
Joint Interoperability	Various	Various	1174								1174	
Testing OTH-T Sys	Various	Various	1340	362	Various	321	Various	408	Various	CONT	CONT	
Subtotal T&E			13585	1175		1262		1812		0	CONT	
Remarks												
Contractor Engineering Support											0	
Government Engineering Support	Various	Various	3443	517	Various	358	Various	195	Various	CONT	CONT	
Program Management Support	Various	Various	1468								1468	
Travel											0	
Transportation											0	
Subtotal Management			4911	517		358		195		0	5581	
Remarks												
Total Cost			18496	1692		1620		2007		0	CONT	

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Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

Project Number & Title	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
2144 SEW ENGINEERING	9,496	9,532	10,330	11,331	11,702	11,968	12,268	12,550

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: OPNAVINST 3050.23 defines the policy to fuse validated/approved C4ISR architectures and interoperability requirements with Joint requirements, milestones and program decisions. C4ISR integrated architectures/requirements are the underpinnings for all C4ISR mission areas and capabilities and, as such, requirements and acquisition processes have been reengineered to use these Integrated Architecture for decisional purposes and strategic planning. Furthermore, Office of the Secretary of Defense (OSD) has defined key programs/efforts (GIG Baseline Extension (BE)), Transformational Satellite (TSAT), JTRS, Network Centric Enterprise Services (NCES), and IA that will drive and change the Navy's C4ISR integrated architectures and associated business processes for requirements, budgets and acquisition. To that end, the SEW provides two main functions: 1) Development of C4ISR Integrated Architecture Products and 2) Supporting C4ISR Systems Engineering processes. The integrated architecture products are used to support the Navy's C4ISR budget process by providing the critical core architecture and enabling capabilities to the Warfighter. The C4ISR systems engineering processes provide the construct for assessments to identify capability shortfalls/gaps and for systems engineering to compare/test alternatives in a joint end-to-end environment while identifying associated Navy wide C4ISR implications. This includes Human Systems Integration (HSI) that provides a mission-centered orientation to ensure effective operational employment of fielded capability. As joint concepts and OSD driving efforts/programs are matured/defined the Navy's C4ISR integrated architectures are refined and the supporting C4ISR Systems Engineering processes work to engineer and enact C4ISR implementations Navy wide across all C4ISR mission areas.

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DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

Products provided:

1) C4ISR Integrated Architectures

-Integrated Architectures and Standards - Architecture Views (Operational Views, Technical Views, System Views etc.)

-Migration Roadmaps to the "To Be" Architectures

-Architecture technical studies and white papers

2) Supporting C4ISR Systems Engineering processes

-C4ISR Requirements Assessments – Gaps Analysis, Overlap Analysis, System Priority Lists, C4ISR Metrics and Models, Analysis of Alternatives, Requirements Database, Assessment Repository, Resource Implications Studies, Baseline Performance Models, Mission Task Analysis, Human Systems Integration (HSI) assessments

-End-to-End Systems Engineering and Integrated Design – Operational feasibility studies, technical feasibility studies, technical roadmap engineering validations, Architectures and Assessment traceability matrices

-Joint and Coalition interoperability trials – Joint end-to-end prototyping trials, and Joint/Coalition interoperability demonstrations, Interoperability assessments and metrics, Interoperability studies via the Joint Warrior Interoperability Demonstration (JWID) and the Joint Rapid Architecture Experimentation (JRAE) Process.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2004	FY 2005	FY 2006	FY 2007
Joint Warrior Interoperability Demonstration (JWID)/ Coalition Warrior Interoperability Demonstration (CWID)	1,660	1,937	2,384	2,910

FY 2004 Accomplishments:

US Northern Command (NORTHCOM) was the host commander for Joint Warrior Interoperability Demonstration (JWID) 2004 and chartered JWID to address Homeland Security/Defense (HLS/D) and Defense Service to Civil Authorities (DSCA) issues by including Federal Emergency Management Agency (FEMA), United States Coast Guard (USCG) and National Guard participants. SPAWAR's JWID 2004 Site hosted 26 different technology trials in two major trial groups (US and Coalition) and demonstrated them to over 150 VIPs and visitors from technology and military backgrounds. SPAWAR's JWID 2004 Site produced two technologies that were submitted for Assistant SECNAV (RD&A) consideration for rapid transition program (results pending). Additionally, Commander THIRD Fleet (COMTHIRDFLT) purchased a number of JWID items for their prototype command center,

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DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

CORTEX. OPNAV realigned JWID as a FORCEnet Coalition venue to solve near term allied interoperability issues. JWID 2004 has enabled SPAWAR's Coalition group to graduate their technologies to TRIDENT WARRIOR 2005, a FORCEnet leave-behind C4I exercise.

FY 2005 Plans:

JWID has been renamed CWID, changing "Joint" to "Coalition." Commander, Joint Forces Command (JFCOM) has assumed management oversight of CWID. NORTHCOM continues as host COCOM and desires to increase the DSCA and HLS/D emphasis. As the sole San Diego site, SPAWAR would assume responsibility for running critical port/border protection scenarios and trial series. Plans are in work to include COMTHIRDFLT participation in CWID 05, and currently, SPAWAR has chosen approximately 21 technologies for its site. Funds in excess of the \$1.7 million passed to the Joint Management Office (JMO), will pay for all site expenses, including coalition interoperability trials and US and national domestic agency interoperability trials. All trials are based on published Federal Business Opportunity issues, delineated in the JMO letter Ser. No. CWID2005 dated 05 MAY 04.

FY 2006 Plans:

Commander, European Command (EUCOM) has been selected as the host COCOM for CWID 06. The emphasis is expected to be on advanced Coalition interoperability, but JFCOM has indicated that CWID will continue to focus on DSCA and HLD/HLS as well. \$1.7 million exercise "buy-in" is funded for CWID participation. \$548K will support the US Navy site in San Diego, which will continue to fund coalition and US trials based on annual published Federal Business Opportunity letter. JWID trials provide the Fleet with three separate evaluations: 1) evaluation provided by NSA for proper security procedures; 2) evaluation provided by Joint Integrated Test Command (JITC) for technical issues; and 3) evaluation provided by warfighter to verify usability. These evaluations are then used to determine whether these projects become program of records.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
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DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

FY 2007 Plans:

Commander, European Command (EUCOM) will continue as the host COCOM for CWID 06. \$1.7 million exercise "buy-in" is funded for CWID participation. \$565K supports the US Navy site in San Diego, which will continue to fund coalition and US trials based on the CWID Federal Business Opportunity letter that will be published in 2006. Remaining funding will allow for additional US trials. JWID trials provide the Fleet with three separate evaluations: 1) evaluation provided by NSA for proper security procedures; 2) evaluation provided by JITC for technical issues; and 3) evaluation provided by warfighter to verify usability. These evaluations are then used to determine whether these projects become program of records.

	FY 2004	FY 2005	FY 2006	FY 2007
JRAE (FORMERLY TITLED EC5G)	3,704	4,125	3,648	4,316

FY 2004 Accomplishments:

Implemented Navy's participation in JRAE process via the associated Joint events known as Joint RAPTORs. These joint efforts built on prior year knowledge gained in C4ISR architecture issues but with specific focus on joint interoperability at the tactical level, including impact on the Warfighter. Completed Navy participation in three Joint Rapid Architecture Prototyping Test & Operational Research (RAPTOR) events with the Army, Air Force and Marine Corps in coordination with JFCOM's Joint Battle Management Command and Control (JBMC2): Joint RAPTOR 04-1 - Joint Enterprise Services Interoperability Experiment (Mar 04); Joint RAPTOR 04-2 - FORCENet/FCS Interoperability Experiment (May/June 04); Joint RAPTOR 04-4 - Navy/Army/Air Force GIG Transformation Experiment (Sept 04). Completed Joint RAPTOR 04-1,2,3,4,and 5 experiment plans, data collection and analysis, and final reports. The results of these joint interoperability events were metrics and measurable outcomes that fed back into Navy Programs of Record and Joint Architecture Products and Assessments (i.e. JFCOM JBMC2) and resulted in specific Army/Navy interoperability enhancements (e.g. interoperable publish and subscription of Army/Navy Blue Force Tracks).

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DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

FY 2005 Plans:

The Joint RAPTOR efforts are driven by JFCOM interoperability risk areas at the horizontal (tactical) level as identified by the Joint Architecture efforts under the JFCOM JBMC2 effort. The JRAE process (via the Joint RAPTOR events) will be used to prototype the "to be" joint integrated architectures and integrate and collaboratively test with the Army and the Air Force to promote joint interoperability between the services next generation tactical C4ISR architectures.

- Two Major Joint RAPTOR interoperability events examining interoperable Service Oriented Architectures and Service transition to the Global Information Grid (GIG) environment.
- Joint RAPTOR Interoperability Trial Plans
- Joint RAPTOR Interoperability Data Collection and Analysis
- Joint RAPTOR Interoperability Metrics
- Joint RAPTOR Final Reports

FY 2006 Plans:

Continue the Joint RAPTOR efforts which will be driven by JFCOM interoperability risk areas at the horizontal (tactical) level as identified by the Joint Architecture efforts under the JFCOM JBMC2 effort. The JRAE process (via the Joint RAPTOR events) will be used to prototype the "to be" joint integrated architectures and integrate and collaboratively test with the Army and the Air Force to promote joint interoperability between the services next generation tactical C4ISR architectures.

- Continue conducting 2 to 3 Major Joint RAPTOR interoperability events
- Joint RAPTOR Interoperability Trial Plans
- Joint RAPTOR Interoperability Data Collection and Analysis
- Joint RAPTOR Interoperability Metrics
- Joint RAPTOR Final Reports

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

FY 2007 Plans:

Continue the Joint RAPTOR efforts, which will be driven by JFCOM interoperability risk areas at the horizontal (tactical) level as identified by the Joint Architecture efforts under the JFCOM JBMC2 effort. The JRAE process (via the Joint RAPTOR events) will be used to prototype the "to be" joint integrated architectures and integrate and collaboratively test with the Army and the Air Force to promote joint interoperability between the services next generation tactical C4ISR architectures.

- Continue conducting 2 to 3 Major Joint RAPTOR interoperability events
- Joint RAPTOR Interoperability Trial Plans
- Joint RAPTOR Interoperability Data Collection and Analysis
- Joint RAPTOR Interoperability Metrics
- Joint RAPTOR Final Reports

	FY 2004	FY 2005	FY 2006	FY 2007
C4ISR REQUIREMENTS ASSESSMENTS	867	937	1,289	1,232

FY 2004 Accomplishments:

Continued to use Modeling and Simulation tools to support the Naval Capabilities Development Process (NCDP) and completed performing requirements analysis of ISR Mission Capability Packages (MCPs) as well as Joint Blue Force Situational Awareness (JBFSa) MCPs. Participated in SYSCOM MCP assessments led by other SYSCOMs for Strike, Shield, and Basing SP-21 pillars. Completed the development of the ISR and JBFSa network related Measures of Effectiveness (MOEs) and Measures of Performance (MOPs) that can be used to assess combat effects, Warfighter impacts, and funding impacts of changes to FORCEnet architecture. Established baseline performance models. Expanded analysis to other systems that identify dependencies of the C4I Architecture, with follow up evaluations in FY 2005.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

FY 2005 Plans:

Continued using Modeling and Simulation tools to support the Naval Capabilities Development Process (NCDP) by performing requirements analysis, collecting and developing model architectures for the Campaign Analysis Modeling and Simulation effort, and conducting assessments of capabilities; and associated systems, associated with analytical issues identified by OPNAV, NETWARCOM, and SPAWAR.

2014-2020 Model C4ISR architectures for 3 Major Combat Operations and specific assessments for 5 POM08 analytic issues in support of the Integrated Strategic Capabilities Plan (ISCP). Additionally this work will be aligned/integrated with the FORCENet Implementation Process (FIP) to support the Sponsor Program Proposal (SPP).

FY 2006 Plans:

2014-2020 Model C4ISR architectures for 4 Major Combat Operations and specific assessments for 5 Navy analytic issues.

FY 2007 Plans:

2016-2022 Model C4ISR architectures for 3 Major Combat Operations and specific assessments for 5 Navy analytic issues.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

	FY 2004	FY 2005	FY 2006	FY 2007
C4ISR ARCHITECTURE AND STANDARDS	2,272	1,701	2,106	2,011

FY 2004 Accomplishments:

Provided the groundwork for developing the overarching FORCEnet architecture as outlined in Sea Power-21 for Sea Strike, Sea Shield, Sea Basing, including FORCEnet standards. Provided FORCEnet Design Studies and support systems that will integrate unique C2 of a BF that will allow warfighters to effectively utilize data from diverse sources over the C4I information grid. Reviewed Joint & Cross service requirements, which will be incorporated in the FORCEnet Architecture in FY 2005.

- FORCEnet Architecture & Standards Ver 1.4 (30 Apr 04)
- FORCEnet Architecture AV-1 (Draft)
- FORCEnet White papers delivered:
 - FORCEnet Beyond line of Sight
 - Composed and Orchestrated Mission Engagement Packages Through Business Process Execution Language (BPEL)
 - Defense Message Service Consolidation
 - Air-borne ADNS Via E2C
 - Alternative use of the Cooperative Engagement Capability (CEC) Data Distribution System (DDS)
 - Recommended for Future Cost-Effective, Supportable and Interoperable US Navy Tactical Voice Systems
 - Fleet Network Operation Center Services (FNOCS) and Restoral capability

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

FY 2005 Plans:

Architecture efforts will begin to develop a target architecture that will support a migration strategy to move Navy PORs from their current platform/stovepipe domain to a future joint network-centric domain. This will be accomplished by aligning fleet and joint requirements and establishing common engineering standards that facilitate common operational mission threads, and architecture that creates interoperational C4ISR and enterprise business systems across the US services. This includes collaboration efforts among Navy FORCEnet, Air Force C2 Constellation, Coast Guard Deepwater and Army Enterprise Architecture. These products will provide for the net-centric C4ISR transformation of the next generation of warfare platforms and systems.

- FORCEnet Architecture & Standards Volume 2.0 updated semi-annually
- Naval Enterprise DoD Architecture Framework (OV, SV,TV, etc.) products
- Various white papers and studies as needed to develop architecture products

FY 2006 Plans:

The FY06 efforts will build upon the FY05 efforts and extend the scope of the work to include the tactical domain. Architecture efforts will continue to expand a target architecture that will support a migration strategy to move Navy PORs from their current platform/stovepipe domain to a future joint network-centric domain. This will be accomplished by aligning fleet and joint requirements and establishing common engineering standards that facilitate common operational mission threads, and architecture that creates interoperational C4ISR and enterprise business systems across the US services. This includes the collaboration efforts of Navy FORCEnet, Air Force C2 Constellation, Coast Guard Deepwater and the Army Enterprise Architecture. These products will provide for the C4ISR transformation of the next generation of warfare platforms and systems. .

- FORCEnet Architecture & Standards Volume 2.0 updated semi-annually
- C4ISR DoD Architecture Framework 1.0 products OV, SV and TV products
- Various white papers and studies as needed to develop architecture products

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

FY 2007 Plans:

The FY07 efforts will build upon the FY06 efforts and extend the scope of the work to include the warfighting support. Architecture efforts will continue to expand a target architecture that will support a migration strategy to move Navy PORs from their current platform/stovepipe domain to a future joint network-centric domain. This will be accomplished by aligning fleet and joint requirements and establishing common engineering standards that facilitate common operational mission threads, and architecture that creates interoperational C4ISR and enterprise business systems across the US services. This includes the collaboration efforts of Navy FORCEnet, Air Force C2 Constellation, Coast Guard Deepwater and the Army Enterprise Architecture. These products will provide for the C4ISR transformation of the next generation of warfare platforms and systems.

- FORCEnet Architecture & Standards Volume 2.0 updated semi-annually
- C4ISR DoD Architecture Framework 1.0 products OV, SV and TV products
- Various white papers and studies as needed to develop architecture products

	FY 2004	FY 2005	FY 2006	FY 2007
END-TO-END SYSTEM ENGINEERING AND INTEGRATED DESIGN	993	832	903	862

FY 2004 Accomplishments:

Decomposed validated Joint operational requirements and performed engineering analysis to determine the appropriate technical solutions. Provided end-to-end engineering assessment of proposed FORCEnet and C4ISR architectural products to ensure operational and technical feasibility. Provided system engineering support to ensure respective Land Based Test Facilities (LBTF) were configured to provide full Net-Centric environment for programs and initiatives. Provided system engineering to PEO Programs in developing integrated roadmaps.

FY 2005 Plans:

Provide systems engineering support for Program Executive Officer (PEOs) to produce near-term integrated roadmaps in various warfare areas.

FY 2006 Plans:

Continue providing systems engineering support for PEOs to integrate architecture and roadmap capabilities across warfare areas.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

FY 2007 Plans:

Provide systems engineering support to apply end-to-end integrated architectures across the Naval Enterprise.

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

Not applicable.

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-3

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

Exhibit R-3 Cost Analysis									Date: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER: SEW ENGINEERING 2144			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-05 Cost	FY-05 Award Date	FY-06 Cost	FY-06 Award Date	FY-07 Cost	FY-07 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
Primary Hardware Development											0	
Ancillary Hardware Development											0	
Systems Engineering											0	
Licenses											0	
Tooling											0	
GFE											0	
Award Fees											0	
Subtotal Product Development			0	0		0		0		0	0	
Remarks												
Development Support	Various	Various	4554								4554	
SEW/C4I Technology Integration	Various	Various	12985								12985	
Systems A&E and Validation	Various	Various	13188								13188	
C4ISR Requirements Assessments	Various	Various	6823	937	Various	1289	Various	1232	Various	CONT	CONT	
C4ISR Architecture and Standards	Various	Various	5229	1701	Various	2106	Various	2011	Various	CONT	CONT	
End-to-End System Engineering and Integrated Design	Various	Various	6610	832	Various	903	Various	862	Various	CONT	CONT	

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-3

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

Info. Repository/Naval Architecture	Various	Various	4000								4000	
Navy Collaborative	Various	Various										
Subtotal Support			53389	3470		4298		4105			CONT	
Remarks												

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-3

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: 2144 PROJECT TITLE: SEW ENGINEERING

Exhibit R-3 Cost Analysis (page 2)									Date: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER: SEW ENGINEERING 2144			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-05 Cost	FY-05 Award Date	FY-06 Cost	FY-06 Award Date	FY-07 Cost	FY-07 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
SEW Eng/JWID	Various	Various	17280	1937	Various	2384	Various	2910	Various	CONT	CONT	CONT
SEW Eng/JRAE	Various	Various	8416	4125	Various	3648	Various	4316	Various	CONT	CONT	CONT
Subtotal T&E			25696	6062		6032		7226				CONT
Remarks												
Contractor Engineering Support											0	
Government Engineering Support											0	
Program Management Support											0	
Travel											0	
Transportation											0	
Subtotal Management			0	0		0		0		0	0	
Remarks												
Total Cost			79085	9532		10330		11331		0	CONT	

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FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2a

DATE: Feb 2005

BUDGET ACTIVITY: 04

PROGRAM ELEMENT: 0604707N

PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

PROJECT NUMBER: Various PROJECT TITLE: Congressional Plus-Ups

CONGRESSIONAL PLUS-UPS:

9364	FY 2004	FY 2005
ADVANCED WIRELESS TECHNOLOGY	3,363	0

Advanced Wireless Network was used to design and develop a flexible, reconfigurable wireless communications network that combines advanced antennas, a software radio, mobile networking protocols and real-time resource management. It will have the ability to provide an adaptive, reconfigurable, mobile wireless network for Navy ships and Marine Corps forces ashore. The benefits will be enhanced Navy battle group and Marine Corps mobile network operations and extended over-the-horizon communications connectivity.

9365	FY 2004	FY 2005
COALITION WARFARE PROGRAM (CWP) OPERATIONAL ASSESSMENT	2,752	0

The Coalition Warfare Project integrates, federates and secures IT systems of multiple operating systems and security domains to improve information sharing and collaboration between services, coalitions, and other organizations and agencies. The system combines network-centric server clusters, Ultra Thin Clients (UTCs) or traditional PCs, and a robust security solution of EAL4 certified trusted operating systems and hardware VPNs. It is an open-system architecture (OSA) so that any operating system and application can be quickly integrated into the system allowing for rapid scalability and flexibility. The security solution provides an avant-garde ability to rapidly reconfigure networks of various security domains and communities of interest (COI) in near-real time globally. On a single display, multiple applications and multiple security domains can be viewed. The system also reduces space, weight, heat, and total ownership costs. This project will establish interoperability across domains, applications, and operating system platforms.

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CLASSIFICATION:								
EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /			BA-4		R-1 ITEM NOMENCLATURE 0604787N - Joint Warfare Transformation Programs			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	0.000	22.239	23.385	20.755	19.967	20.226	20.669	21.082
3021 - Joint Warfare Transformation Program	0.000	22.239	23.385	20.755	19.967	20.226	20.669	21.082
Quantity of RDT&E Articles								
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Systems Integration Command (JSIC) is the U.S. Joint Forces Command (USJFCOM) and Chairman, Joint Chiefs of Staff (CJCS) capability for warfighter exploration, prototyping, and evaluation of C2 and C4ISR capabilities. The Command provides the Combatant Commands, at the Joint Force Headquarters level, with a laboratory and assessment environment for the warfighter and technologist. This provides near-term joint operational capabilities and, within a Joint Command and Control (JC2) environment with the Interoperability Technology Demonstration Center (ITDC), demonstrates the joint operational, systems of systems, technical, software, and procedural interoperability of new systems and programs prior to further progress within the acquisition system. JSIC serves as the technical analysis and assessment activity for the Joint Requirement Oversight Council (JROC) capability driven requirements by determining system "value-added" PRIOR to introduction to the Combatant Commanders and in advance of system fielding in operational environments. JSIC also provides a joint interoperability compliance activity for the milestone decision authorities/program managers, e.g., Joint Battle Management Command and Control (JBMC2) Board of Directors, that ensures that selected acquisition systems and programs are fully interoperable PRIOR to being fielded. The intent is for the JSIC to be a forcing function for interoperable joint solutions and a means to foster rapid, near-term insertion of C4ISR technology by promoting the ability to meet the DoD direction for spiral development and evolutionary acquisition. The mission assignment of the JSIC is to provide for the fielding of warfighter C2 systems through rapid systems prototyping and technical and operational evaluations using laboratory environments and field venues joining the technologists and the operational warfighter to meet the validated needs.</p> <p>The Joint Systems Integration Command (JSIC) [formerly Joint (C4ISR) Battle Center (JBC)] realigned from PE 0305188N, PROJECT 2456 and Interoperability Technology Demonstration Center (ITDC) realigned from PE 0603727N, PROJECT 2497.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: The Joint Systems Integration Command (JSIC) is the U. S. Joint Forces Command's (JFCOM) facility for warfighter exploration and assessment of C4ISR capabilities. The mission of the JSIC is to prototype and to operationally assess current and emerging technology to address the joint warfighters' needs. The Command provides the Combatant Commands with near-term solutions that address C4ISR problems at the Joint Force Headquarters level.</p>								

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EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604787N - Joint Warfare Transformation Programs	PROJECT NUMBER AND NAME 3021 - Joint Warfare Transformation Program																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 04</td> <td style="text-align: center;">FY 05</td> <td style="text-align: center;">FY 06</td> <td style="text-align: center;">FY 07</td> </tr> <tr> <td>Interoperability Technology Demonstration Center (ITDC)</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">13.500</td> <td style="text-align: center;">14.100</td> <td style="text-align: center;">11.200</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>FY05-07 Planned: Demonstrate the five categories of operational, systems of systems, technical, software, and procedural interoperability of selected new programs or systems prior to further progress within the acquisition system. The Center will provide interoperability demonstrations of selected (configuration controlled) early capability implementations in coordination with the milestone decision authorities and joint program office. Demonstrations of early implementations will lead to early identification of interoperability issues and allow for earlier fielding of interoperable joint capabilities.</p>						FY 04	FY 05	FY 06	FY 07	Interoperability Technology Demonstration Center (ITDC)	0.000	13.500	14.100	11.200	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Interoperability Technology Demonstration Center (ITDC)	0.000	13.500	14.100	11.200															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 04</td> <td style="text-align: center;">FY 05</td> <td style="text-align: center;">FY 06</td> <td style="text-align: center;">FY 07</td> </tr> <tr> <td>Advanced Systems Prototyping</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">2.821</td> <td style="text-align: center;">3.076</td> <td style="text-align: center;">3.131</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>FY05-07 Planned: Build, test, and deliver operational prototypes that solve near-term capability gaps identified by one of several possible sources. Advanced Systems Prototyping will use organic laboratory resources, equipment, and technical personnel to perform these functions integrating external providers technologies as necessary.</p>						FY 04	FY 05	FY 06	FY 07	Advanced Systems Prototyping	0.000	2.821	3.076	3.131	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Advanced Systems Prototyping	0.000	2.821	3.076	3.131															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 04</td> <td style="text-align: center;">FY 05</td> <td style="text-align: center;">FY 06</td> <td style="text-align: center;">FY 07</td> </tr> <tr> <td>CCs Requirements Analysis and Capability Assessments</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">2.831</td> <td style="text-align: center;">3.045</td> <td style="text-align: center;">3.086</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>FY05-07 Planned: Analyze near-term requirements from all Combatant Commanders, identify current emerging or mature technology available to address these requirements, perform comprehensive assessment for jointness, maturity, and warfighter utility. JSIC projects are nominated to meet Combatant Commanders and Joint Force transformational requirements for the fiscal year. Those submitted to the Joint Staff for approval subsequently become the approved fiscal year program.</p>						FY 04	FY 05	FY 06	FY 07	CCs Requirements Analysis and Capability Assessments	0.000	2.831	3.045	3.086	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
CCs Requirements Analysis and Capability Assessments	0.000	2.831	3.045	3.086															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No. 83

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604787N - Joint Warfare Transformation Programs	PROJECT NUMBER AND NAME 3021 - Joint Warfare Transformation Program																	
(U) B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 04</td> <td style="text-align: center;">FY 05</td> <td style="text-align: center;">FY 06</td> <td style="text-align: center;">FY 07</td> </tr> <tr> <td>DOTMLP-F Transformation Change Package (TCP) Recommendations</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.608</td> <td style="text-align: center;">0.643</td> <td style="text-align: center;">0.683</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	DOTMLP-F Transformation Change Package (TCP) Recommendations	0.000	0.608	0.643	0.683	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
DOTMLP-F Transformation Change Package (TCP) Recommendations	0.000	0.608	0.643	0.683															
RDT&E Articles Quantity																			
<p>FY05-FY07 Planned: Provide Doctrine, Organizational, Training, Material, Leadership, Personnel, and Facilities (DOTMLP) recommendations on fielding strategies for USJFCOM and Joint Requirement Oversight Council (JROC) endorsement. Recommendations are based on results from technology assessments, which address the military utility of proposed solutions and identify relevant Service programs, doctrinal impacts, training implications, personnel requirements, etc.</p>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 04</td> <td style="text-align: center;">FY 05</td> <td style="text-align: center;">FY 06</td> <td style="text-align: center;">FY 07</td> </tr> <tr> <td>Joint Concept Development and Experimentation Support</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.610</td> <td style="text-align: center;">0.648</td> <td style="text-align: center;">0.742</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Joint Concept Development and Experimentation Support	0.000	0.610	0.648	0.742	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Joint Concept Development and Experimentation Support	0.000	0.610	0.648	0.742															
RDT&E Articles Quantity																			
<p>FY05-07 Planned: Provide support for Limited Objective Experiments and Multi-national experimentation efforts. Continue experimentation and prototyping laboratory support for Standing Joint Force Headquarters, Joint National Training Capability and Joint Experimentation events.</p>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FY 04</td> <td style="text-align: center;">FY 05</td> <td style="text-align: center;">FY 06</td> <td style="text-align: center;">FY 07</td> </tr> <tr> <td>Federated Joint C2 Laboratories (FJC2L)</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">1.869</td> <td style="text-align: center;">1.873</td> <td style="text-align: center;">1.913</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Federated Joint C2 Laboratories (FJC2L)	0.000	1.869	1.873	1.913	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Federated Joint C2 Laboratories (FJC2L)	0.000	1.869	1.873	1.913															
RDT&E Articles Quantity																			
<p>FY05-07 Planned: The Federated Joint C2 Laboratories (FJC2L) is a voluntary consortium of the JSIC, the Service Battle Centers/Laboratories, Combatant Commanders, Agencies and other DoD organizations formed to promote near-term Joint C4ISR solutions to Joint Force Headquarters operational needs/issues. The JSIC, as the overseer of the consortium, provides annual support to these efforts through project experimentation, prototyping, and assessment for joint solutions.</p>																			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																																																								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0604787N - Joint Warfare Transformation Programs	PROJECT NUMBER AND NAME 3021 - Joint Warfare Transformation Program																																																									
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<p>(U) D. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><u>Line Item No. & Name</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 2004</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 2005</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 2006</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 2007</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 2008</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 2009</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 2010</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 2011</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>To Complete</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td style="padding-top: 10px;">Not Applicable</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) E. ACQUISITION STRATEGY:</p> <p>FY 2005. The JSIC has a major contract for their RDT&E efforts. Equipment required to support our various projects are either bought from other service contracts and/or from the GSA schedule. Services are provided by other services and/or various vendors with expertise on a specific assessment JSIC is accomplishing.</p>										<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>	Not Applicable										
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UNCLASSIFIED

CLASSIFICATION:												
Exhibit R-3 Cost Analysis (page 1)										DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-4			0604787N - Joint Warfare Transformation Programs				3021 - Joint Warfare Transformation Program					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Dev Support Equip Acquisition	MIPR	GSA Schedule		3.986	Various	4.141	Various	2.005	Various	Continuing	Continuing	Continuing
Systems Engineering	C-CPFF	ODU		0.093	10/04	0.094	10/05	0.096	10/06	Continuing	Continuing	Continuing
Contractor Engineering Support	C-CPFF	GTRI		0.750	10/04	0.788	10/05	0.827	10/06	Continuing	Continuing	Continuing
Gov't Engineering Support	C-CPFF	General Dynamics		3.127	01/05	3.196	01/06	3.274	01/07	Continuing	Continuing	Continuing
Systems Engineering	C-CPFF	South Carolina Research		0.344	10/04	0.361	10/05	0.379	10/06	Continuing	Continuing	Continuing
Gov't Engineering Support	MIPR	Various DoD		0.623	Various	0.773	Various	0.474	Various	Continuing	Continuing	Continuing
Travel		Various DoD		0.045	Various	0.046	Various	0.047	Various	Continuing	Continuing	Continuing
Subtotal Product Development			0.000	8.968		9.399		7.102		Continuing	Continuing	Continuing
Remarks:												
Systems Engineering Support	C-CPFF	ODU		0.078	10/04	0.079	10/05	0.080	10/06	Continuing	Continuing	Continuing
Contractor Engineering Support	C-CPFF	General Dynamics		3.138	01/05	3.295	01/06	3.460	01/07	Continuing	Continuing	Continuing
Gov't Engineering Support	MIPR	Various DoD		1.367	Various	1.435	Various	1.007	Various	Continuing	Continuing	Continuing
Travel		Various DoD		0.034	Various	0.035	Various	0.036	Various	Continuing	Continuing	Continuing
											0.000	0.000
											0.000	0.000
											0.000	0.000
Subtotal Support			0.000	4.617		4.844		4.583		Continuing	Continuing	Continuing
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-4			0604787N - Joint Warfare Transformation Programs				3021 - Joint Warfare Transformation Program					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Dev Support Equip Acquisition	MIPR	GSA Schedule		2.998	Various	3.091	Various	2.921	Various	Continuing	Continuing	Continuing
Systems Engineering	C-CPFF	ODU		0.104	10/04	0.109	10/05	0.114	10/06	Continuing	Continuing	Continuing
Contractor Engineering Support	C-CPFF	General Dynamics		3.569	01/05	3.747	01/06	3.934	01/07	Continuing	Continuing	Continuing
Systems Engineering	C-CPFF	South Carolina Research		0.587	10/04	0.616	10/05	0.647	10/06	Continuing	Continuing	Continuing
Gov't Engineering Support	MIPR	Various DoD		1.288	Various	1.470	Various	1.344	Various	Continuing	Continuing	Continuing
Travel		Various DoD		0.108	Various	0.109	Various	0.110	Various	Continuing	Continuing	Continuing
Subtotal T&E			0.000	8.654		9.142		9.070		Continuing	Continuing	Continuing
Remarks:												
Contractor Engineering Support											0.000	0.000
Government Engineering Support											0.000	0.000
Program Management Support											0.000	0.000
Travel											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
Total Cost			0.000	22.239		23.385		20.755		Continuing	Continuing	0.000
Remarks:												

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